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This document provides summary information on power generation facilities located in the U.S. EPA, Region VIII states of Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming. When available, plant specific information is presented.

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REGION 8
1977 POWER PLANT SUMMARY

MARCH 1978

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DENVER, COLORADO 80295

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INTRODUCTION

This publication represents the second year a regional summary of existing and proposed electrical generation facilities has been prepared. The information and format as presented in the previous publication has been expanded to include plant specific information.

The new format used to identify the types of electrical generation is that established by the Western Systems Coordinating Council (WSCC) in their publication titled "Reliability and Adequacy of Electric Service" April 1, 1977 reply to Federal Power Commission (FPC) Order 383-4 Docket R-362.

Information for this publication was obtained from:

1. Western Systems Coordinating Council Reply to Federal Power Commission Docket R-362 "Reliability and Adequacy of Electric Service" April 1, 1977.
2. Mid-Continent Area Reliability Coordination Agreement, Reply to Federal Power Commission Docket R-362, April 1, 1977.
3. Individual utility reports to the Federal Power Commission FPC, Form 67 for 1974 and 1976.
4. Personal communication with various State and local officials.

This document identifies the existing as of December 31, 1976 and proposed through December 31, 1986 electrical generation facilities for the EPA Region VIII states of Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming. Information on the operating utility, plant name, number of units, location, size and fuel are provided.

From the information presented in this publication it can be seen that the total net generating capacity for the EPA Region VIII is projected to almost double during the ten year period from December 31, 1976 through December 31, 1986. These projected capacity additions are principally steam generation, most of which will be coal fired.

It is hoped that this publication will be used to identify areas where future electric power generation is likely to occur and thus identify those areas where near term and sound environmental planning may be needed.

PUBLICATION USE

Section I Generating Capacity Summaries provides graphical summaries of the existing and proposed net electrical generating capacities for the ten (10) year period from December 31, 1976 through December 31, 1986. This information is displayed for the six state EPA Region VIII as a whole, Figure 1, as well as on an individual state-by-state basis, Figures 2 and 3. The information is presented in terms of two general types of generation; steam generation and other generation. Steam generation includes those types of generation that are dependent upon the production of steam to power the turbine generator. This general category includes categories: (1) Steam Turbine - Non Nuclear; (2) Steam - HTGR Nuclear and (5) Combined Cycle as identified in Section III GENERATING FACILITIES. The other general category then includes categories (3) Internal Combustion; (4) Combustion Turbine; (6) Conventional Hydro; and (7) Pumped Storage. Based upon the above two general categories, net generating capacities as of December 31, 1976 and projected for December 31, 1986 are shown graphically in Figure 1, 2 and 3. In all instances the size of the circles are proportional to the net generating capacities.

Section II Projected Capacity Additions is the basic information used to develop the figures shown in Section I. The net generating additions projected through December 31, 1986 are presented both numerically, Tables 1 through 7, and graphically, Figures 4 through 10.

Section III Generating Facilities provides a state-by-state breakdown of individual existing and projected power generating facilities through December 31, 1986. Information is provided on the operating utility, as keyed to the system identification codes in Table 8; the plant name, number of units, and location, the size of the units; the primary and alternate type of fuels, also keyed to Table 8; the projected on-line date; the participants in the facility if appropriate; and a code number. The information as presented under the heading of "Net Generating Capacity (MW)" represents the net generating capacity of the successive units as identified under the units heading. For example under A. Colorado 1a Steam Turbine - Non Nuclear, the George Birdsall plant is shown to have three units. It is then shown under "net Generating Capacity (MW)", that the first unit has a net capacity of 17 MW as does the second unit, while the third unit has a net capacity of 23 MW. In some instances individual unit sizes were not available and the net generating capacity of all units is shown as total.

The code number corresponds to the plant locations as shown on Figures 11 and 12. The code numbers indicate the state by initial(s), if the facility is steam electric or other by including the symbol O for other, and the numerical sequence in the tables. For the steam electric category the code number also corresponds to the plant specific information in Section IV Plant Specific Information.

The generating facilities as identified in this publication are divided into seven categories and further subdivided into existing and projected subcategories. The seven categories are: 1 a & b Steam Turbine - Non Nuclear, 2 a & b Steam - HTGR Nuclear; 3 a & b Internal Combustion, 4 a & b Combustion Turbine, 5 a & b Combined Cycle, 6 a & b Conventional Hydro, and 7 a & b Pumped Storage. The letter a identifies existing units while b is used to identify proposed units.

Section IV Plant Specific Information of this publication provides plant specific information for plants identified under category 1a Existing Steam Turbine - Non Nuclear, and in some instances information for plants under category 1b, Proposed Steam Turbine - Non Nuclear. The information has been extracted from FPC Form 67 for data years 1974 and 1976 and Environmental Assessments and Impact Statements when available. The information presented in this section provides operating characteristics on some of the environmentally significant functions of the individual facilities.

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b. Proposed 27

2. Steam - HTGR Nuclear

a. Existing 27
b. Proposed 27

3. Internal Combustion

a. Existing 28
b. Proposed 28

4. Combustion Turbine

a. Existing 28
b. Proposed 29

5. Combined Cycle

a. Existing 29
b. Proposed 29

6. Conventional Hydro

a. Existing 29
b. Proposed 30

7. Pumped Storage

a. Existing 31
b. Proposed 31

B. Montana Facilities

1. Steam Turbine - Non Nuclear

a. Existing 32
b. Proposed 32

2. Steam - HTGR Nuclear

a. Existing 32
b. Proposed 32

3. Internal Combustion

a. Existing 33
b. Proposed 33

4. Combustion Turbine

a. Existing 33
b. Proposed 33

B. Montana Facilities (con't)

5. Combined Cycle
  a. Existing 33
  b. Proposed 33

6. Conventional Hydro
  a. Existing 34
  b. Proposed 35

7. Pumped Storage
  a. Existing 35
  b. Proposed 35

C. North Dakota Facilities

1. Steam Turbine - Non Nuclear
  a. Existing 36
  b. Proposed 36

2. Steam - HTGR Nuclear
  a. Existing 37
  b. Proposed 37

3. Internal Combustion
  a. Existing 37
  b. Proposed 37

4. Combustion Turbine
  a. Existing 37
  b. Proposed 38

5. Combined Cycle
  a. Existing 38
  b. Proposed 38

6. Conventional Hydro
  a. Existing 38
  b. Proposed 38

7. Pumped Storage
  a. Existing 38
  b. Proposed 38

D. South Dakota Facilities

1. Steam Turbine - Non Nuclear
   a. Existing 39
   b. Proposed 39

2. Steam - HTGR Nuclear
   a. Existing 40
   b. Proposed 40

3. Internal Combustion
   a. Existing 40
   b. Proposed 41

4. Combustion Turbine
   a. Existing 41
   b. Proposed 41

5. Combined Cycle
   a. Existing.. 42
   b. Proposed 42

6. Conventional Hydro
   a. Existing 42
   b. Proposed 43

7. Pumped Storage
   a. Existing 43
   b. Proposed 43

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   a. Existing 43
   b. Proposed 44

2. Steam - HTGR Nuclear
   a. Existing 44
   b. Proposed 44

3. Internal Combustion
   a. Existing.. 45
   b. Proposed 45

4. Combustion Turbine
   a. Existing 45
   b. Proposed 45

5. Combined Cycle
   a. Existing 45
   b. Proposed 45

E. Utah Facilities (Continued)

6. Conventional Hydro
   a. Existing 46
   b. Proposed 46

7. Pumped Storage
   a. Existing 46
   b. Proposed 46

F. Wyoming Facilities

1. Steam Turbine - Non Nuclear
   a. Existing 47
   b. Proposed 47

2. Steam - HTGR Nuclear
   a. Existing 48
   b. Proposed 48

3. Internal Combustion
   a. Existing.................................... 48
   b. Proposed 48

4. Combustion Turbine
   a. Existing 48
   b. Proposed 49

5. Combined Cycle
   a. Existing 49
   b. Proposed 49

6. Conventional Hydro
   a. Existing 49
   b. Proposed 50

7. Pumped Storage
   a. Existing 50
   b. Proposed 50

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C5, Durango (no information)

C6, Hayden 65

C7, Nucla 68

C8, Oliver (no information)

C9, Alamosa (no infromation)

C10, Arapahoe 71

C11, Cameo 74

C12, Cherokee 77

C13, Comanche 80

C14, Valmont 83

C15, Zuni 87

C16, W. R. Clark 90

C17, Pueblo 93

C18, Rocky Ford (no information)

C19, Trinidad (no information)

C20, Walsen Plant (no information)

C21, Ray D. Nixon (no information)

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M, Montana

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SD, South Dakota

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SD4, Lawrence 132

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SD6, Aberdeen (no information)

SD7, Mitchell (no information)

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U, Utah

U1, Carbon (no information)

U2, Cal Poc Ute Co. (no information)

U3, Gadsby (no information)

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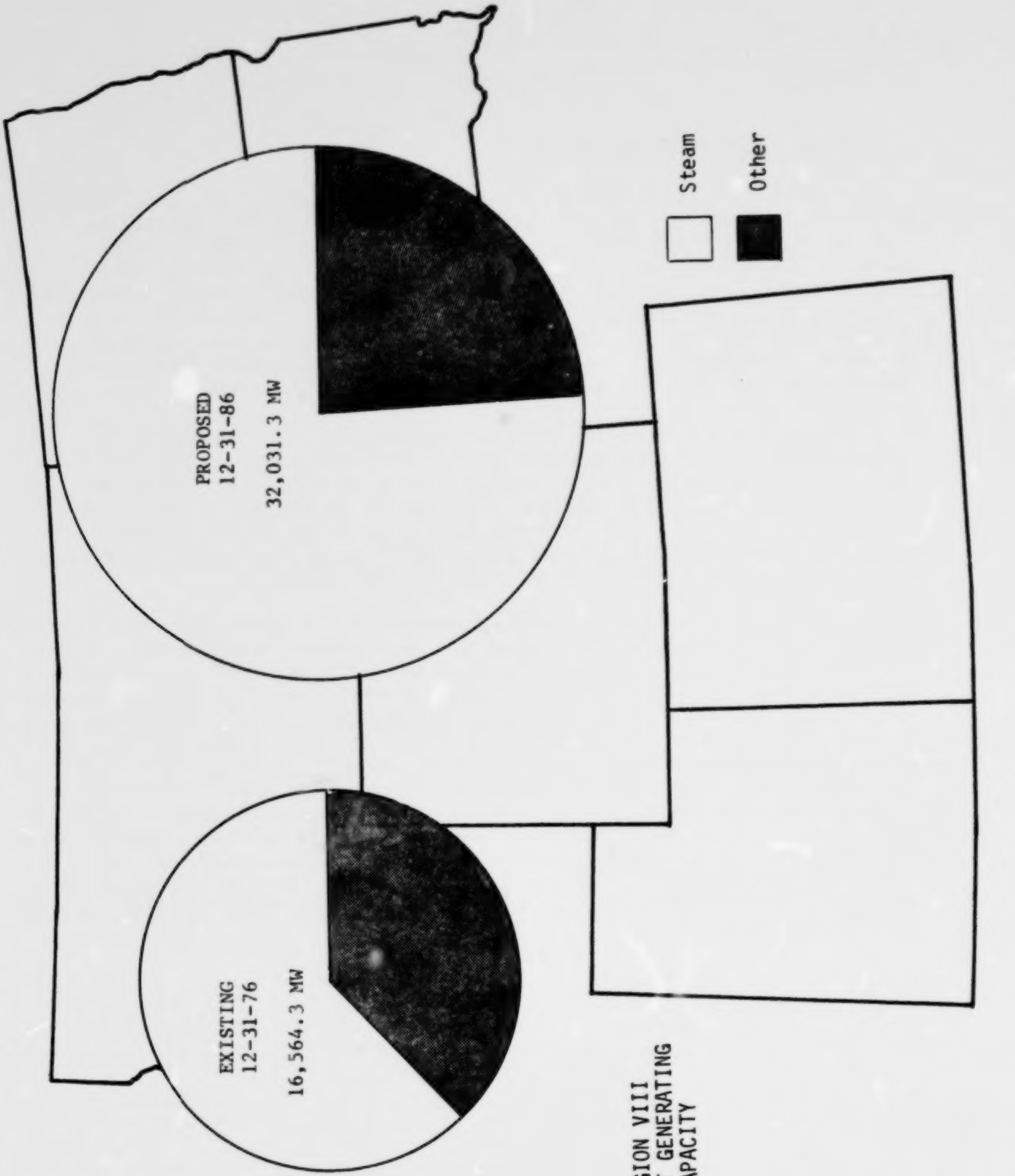
SECTION I

GENERATING CAPACITY SUMMARIES

Figures 1, 2 and 3 show the existing, as of December 31, 1976, and projected, through December 31, 1986, net electrical generating capacity for the EPA Region VIII and the individual states in the Region. The sizes of the circles in the figures are proportional to the specified net generating capacity thus allowing a quick and general visual comparison of the existing and projected conditions and changes. The circles are divided into segments representing the net generating capacity produced by steam; categories 1, 2 and 5 under Section III GENERATING FACILITIES; and by other methods such as hydro, internal combustion, etc.

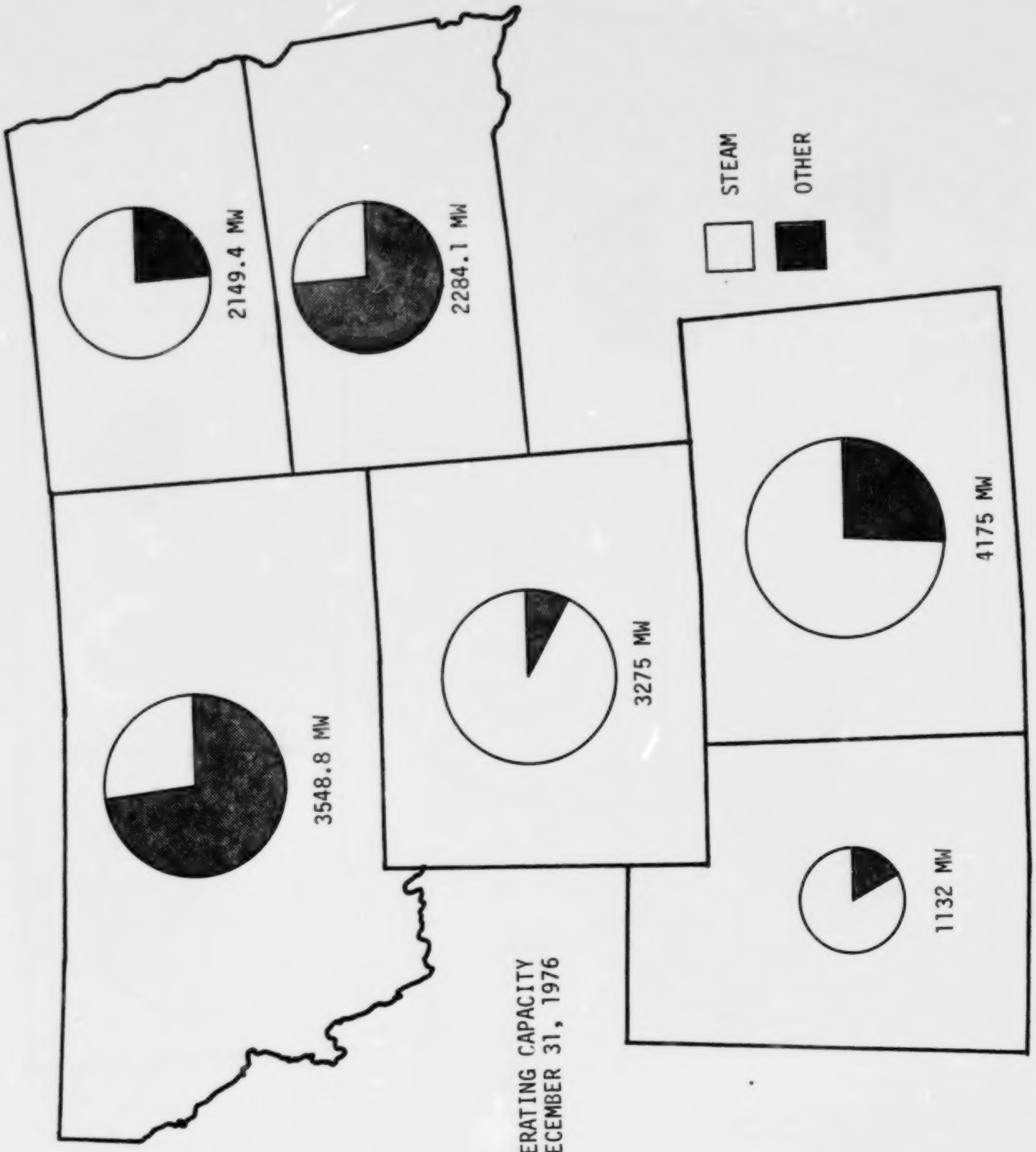
Figure 1 shows the total net generating capacity is projected to approximately double from December 31, 1976 through December 31, 1986. Generation by steam facilities accounts for 62 percent of the total net capacity in 1976 and will make up approximately 76 percent of the total net capacity in 1986. The net steam generating capacity will increase about 2.4 times over the ten year period while other net generating capacity will increase only about 1.2 times over the same period.

Figures 2 and 3 show the existing and projected net generating capacities for the individual EPA Region VIII states of Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming. Figure 2 shows Colorado had the largest net generating capacity of the six states as of December 31, 1976. Colorado was followed in order of decreasing net generating capacity by Montana, Wyoming, SOuth Dakota, North Dakota and Utah. Figure 3 shows Colorado as also having the largest projected net generating capacity as of December 31, 1986. The sequence of decreasing net generating capacity for the states following Colorado is projected to change to Wyoming, Montana, North Dakota, Utah, South Dakota. Utah is projected to have the greatest increase, approximately 3.7 times, in net generating capacity while South Dakota shows the least increase, approximately 1.1 times, over the ten year period. Colorado is projected to experience the largest absolute net generating capacity increase of 4352 megawatts.



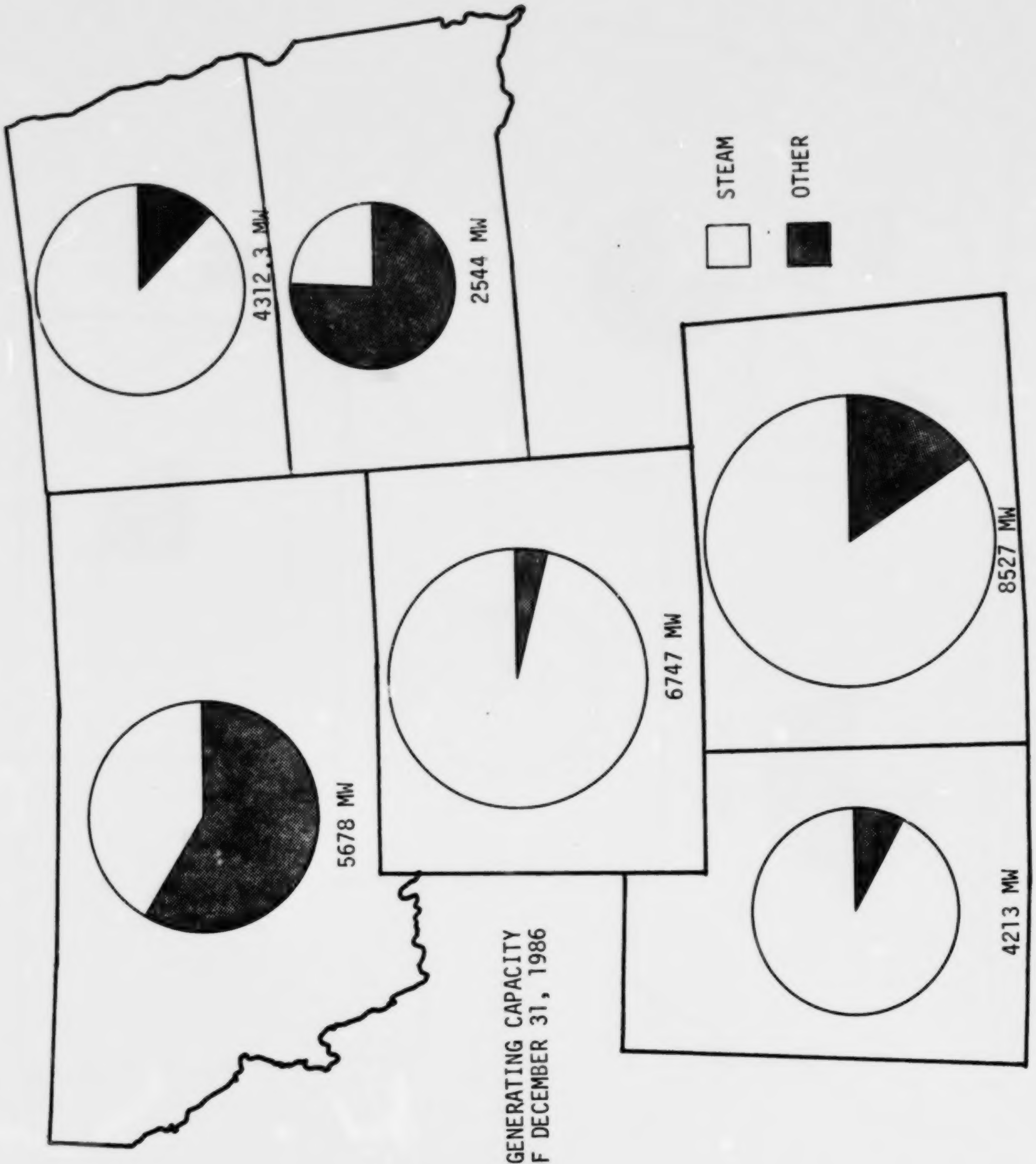
REGION VIII
NET GENERATING
CAPACITY

Figure 1


2149.4 MW
2284.1 MW
STEAM
OTHER
3548.8 MW
3275 MW
4175 MW
1132 MW

NET GENERATING CAPACITY
AS OF DECEMBER 31, 1976

Figure 2


4312.3 MW
2544 MW
5678 MW
6747 MW
8527 MW
4213 MW
STEAM
OTHER

NET GENERATING CAPACITY
AS OF DECEMBER 31, 1986

Figure 3

II. PROJECTED CAPACITY ADDITIONS

Projected additions in net electrical generating capacity are shown in both graphical and numeric form for the 10 year period from December 31, 1976 through December 31, 1986. The incremental values are divided into two categories of steam and other. The steam additions include the processes identified in categories 1, 2, and 5 in Section III.i.e Steam Turbine - non nuclear, Steam-HTGR Nuclear and Combined Cycle. The Other Additions are those identified in categories 3, 4, 6 and 7, i.e., Internal Combustion, Combustion Turbine, Conventional Hydro and Pumped Storage.

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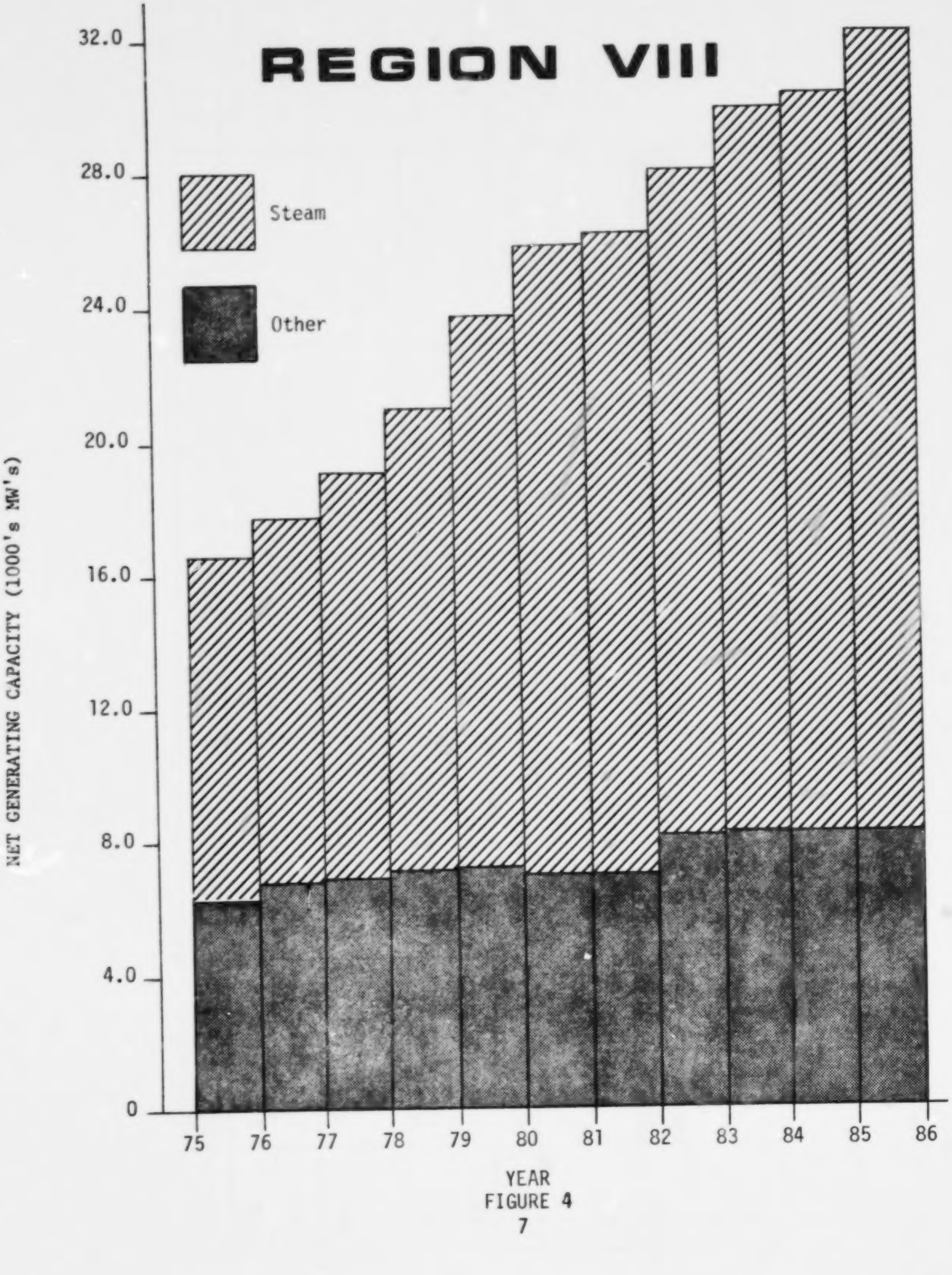
REGION VIII
Steam
Other
NET GENERATING CAPACITY (1000's MW's)
32.0
28.0
24.0
20.0
16.0
12.0
8.0
4.0
0
75
76
77
78
79
80
81
82
83
84
85
86
YEAR

FIGURE 4

Table 1

REGION VIII NET GENERATING CAPACITY PROJECTIONS TO DEC. 31, 1986

YEAR ENDING DEC. 31	STEAM ADDITIONS (MW's)	STEAM CUMULATIVE (MW's)	OTHER ADDITIONS (MW's)	OTHER CUMULATIVE (MW's)	TOTAL ADDITIONS (MW's)	TOTAL CUMULATIVE (MW's)
1976		10270.8/10186.3		6293.5/6268.7		16564.3/16455
1977	725/700	10995.8/10886.3	472/506	6765.5/6774.7	1197/1206	17761.3/17661
1978	1184.2/1183.7	12180/12070	180.1/204.1	6945.6/6978.8	1364.3/1387.8	19125.6/19048.8
1979	1726/1726	13906/13796	187.6/235.4	7133.2/7214.2	1913.6/1961.4	21039.2/21010.2
1980	2696/2694	16602/16490	20/26	7153.2/7240.2	2716/2720	23755.2/23730.2
1981	2223.5/2323.5	18825.5/18813.5	-188/-288	6965.2/6952.2	2035.5/2035.5	25790.7/25765.7
1982	380/380	19205.5/19193.5	0/0	6965.2/6952.2	380/380	26170.7/26145.7
1983	1210/1210	20415.5/20403.5	630/414	7595.2/7366.2	1840/1624	28010.7/27769.7
1984	1746/1746	22161.5/22149.5	90/90	7685.2/7456.2	1836/1836	29846.7/29605.7
1985	427/425.4	22588.5/22574.9	-2.4/-2.6	7682.8/7453.6	424.6/422.8	30271.3/30028.5
1986	1750/1750	24338.5/24324.9	0/0	7682.8/7453.6	1750/1750	32021.3/31778.5

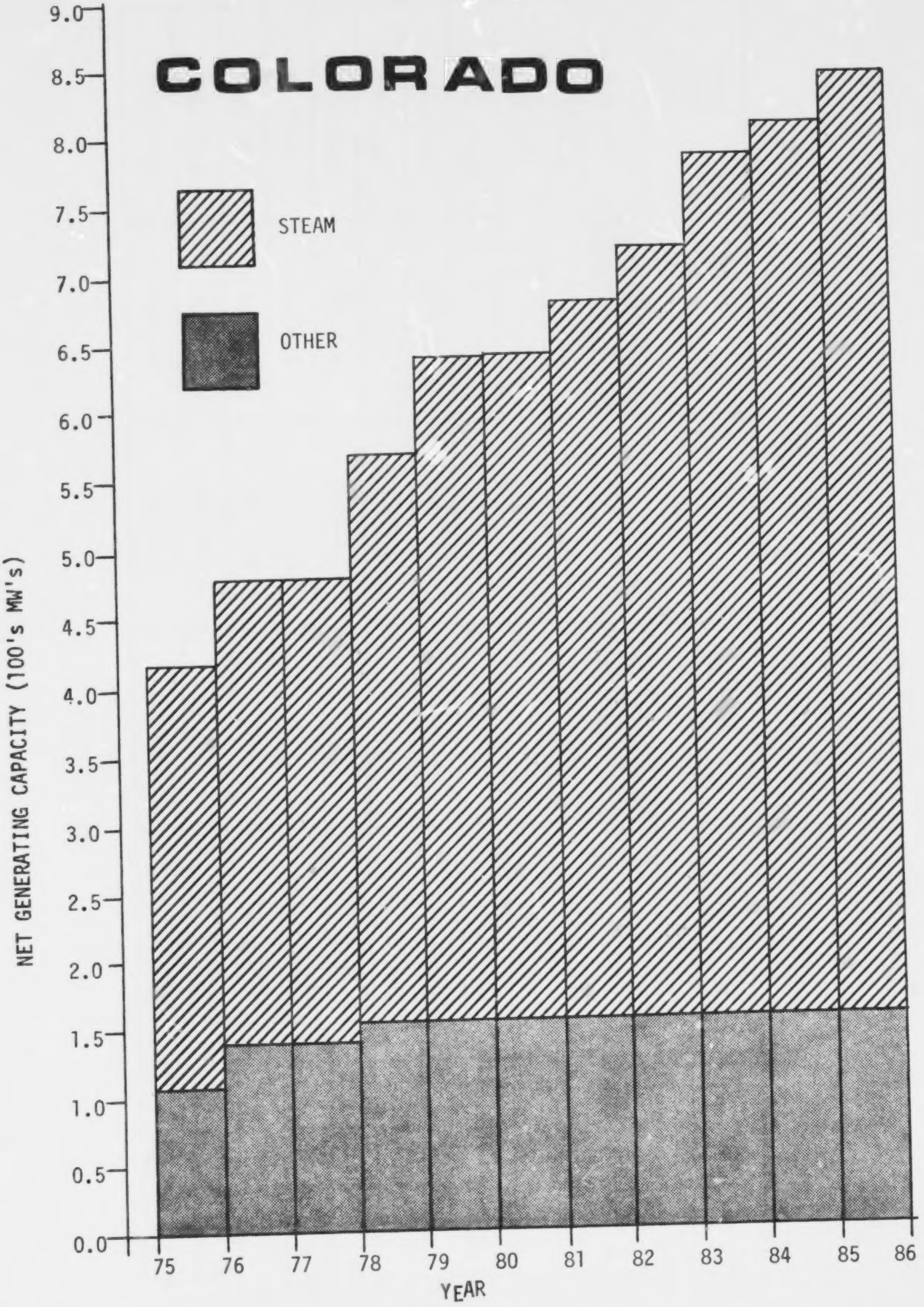
COLORADO
STEAM
OTHER
NET GENERATING CAPACITY (100's MW's)
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
75
76
77
78
79
80
81
82
83
84
85
86
YEAR

Figure 5

TABLE 2

COLORADO NET GENERATING CAPACITY PROJECTIONS TO DEC. 31, 1986

YEAR ENDING DEC. 31	STEAM ADDITIONS (MW's)	STEAM CUMULATIVE (MW's)	OTHER ADDITIONS (MW's)	OTHER CUMULATIVE (MW's)	TOTAL ADDITIONS (MW's)	TOTAL CUMULATIVE (MW's)
1976	▨	3102/2980	▨	1073/1194	▨	4175/4174
1977	300/300	3402/3280	309/323	1382/1517	609/623	4784/4797
1978	0/0	3402/3280	0/0	1382/1517	0/0	4784/4797
1979	760/760	4162/4040	141/171	1523/1688	901/931	5685/5728
1980	696/694	4858/4734	-2/-2	1521/1686	694/692	6379/6420
1981	196/296	5054/5030	-188/-288	1333/1398	8/8	6387/6428
1982	380/380	5434/5410	0/0	1333/1398	380/380	6767/6808
1983	380/380	5814/5790	0/0	1333/1398	380/380	7147/7188
1984	680/680	6494/6470	0/0	1333/1398	680/680	7827/7868
1985	200/200	6694/6670	0/0	1333/1398	200/200	8027/8068
1986	500/500	7194/7170	0/0	1333/1398	500/500	8527/8568

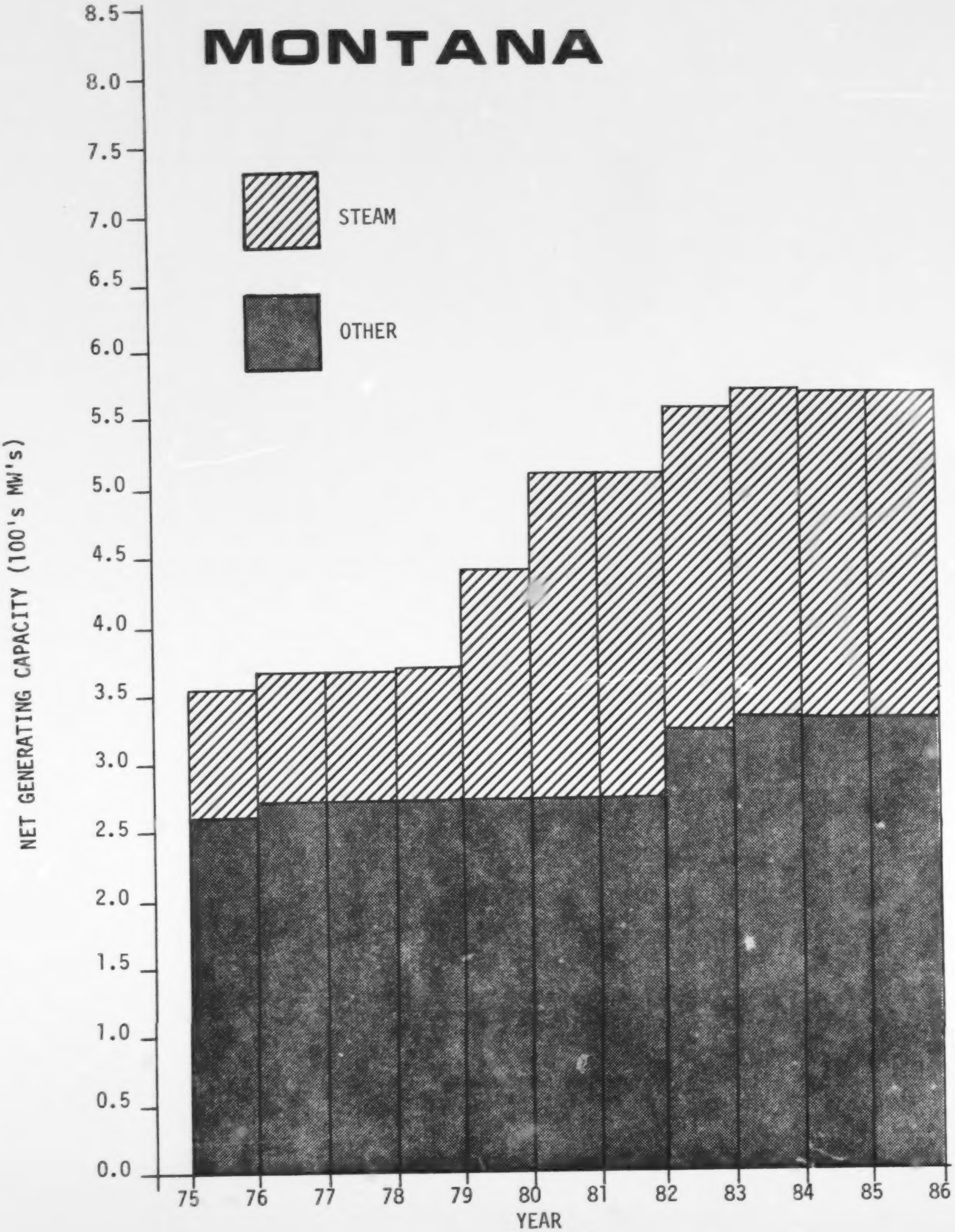
MONTANA
STEAM
OTHER
NET GENERATING CAPACITY (100's MW's)
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
75
76
77
78
79
80
81
82
83
84
85
86
YEAR

Figure 6

TABLE 3

MONTANA NET GENERATING CAPACITY PROJECTIONS TO DEC. 31, 1986

YEAR ENDING DEC. 31	STEAM ADDITIONS (MW's)	STEAM CUMULATIVE (MW's)	OTHER ADDITIONS (MW's)	OTHER CUMULATIVE (MW's)	TOTAL ADDITIONS (MW's)	TOTAL CUMULATIVE (MW's)
1976		960.2/968.2		2588.6/2455.4		3548.8/3423.6
1977	0/0	960.2/968.2	125/125	2713.6/2580.4	125/125	3673.8/3548.6
1978	0/0	960.2/968.2	0/0	2713.6/2580.4	0/0	3673.8/3548.6
1979	0/0	960.2/968.2	21.6/29.4	2735.2/2609.8	21.6/29.4	3695.4/3578
1980	700/700	1660.2/1668.2	0/0	2735.2/2609.8	700/700	4395.4/4278
1981	700/700	2360.2/2368.2	0/0	2735.2/2609.8	700/700	5095.4/4978
1982	0/0	2360.2/2368.2	0/0	2735.2/2609.8	0/0	5095.4/4978
1983	0/0	2360.2/2368.2	499/283	3234.2/2892.8	499/283	5594.4/5261
1984	0/0	2360.2/2368.2	90/90	3324.2/2982.8	90/90	5684.2/5351
1985	-6.4/-7.3	2353.8/2360.9	0/0	3324.2/2982.8	-6.4/-7.3	5678/5343.7
1986	0/0	2353.8/2360.9	0/0	3324.2/2982.8	0/0	5678/5343.7

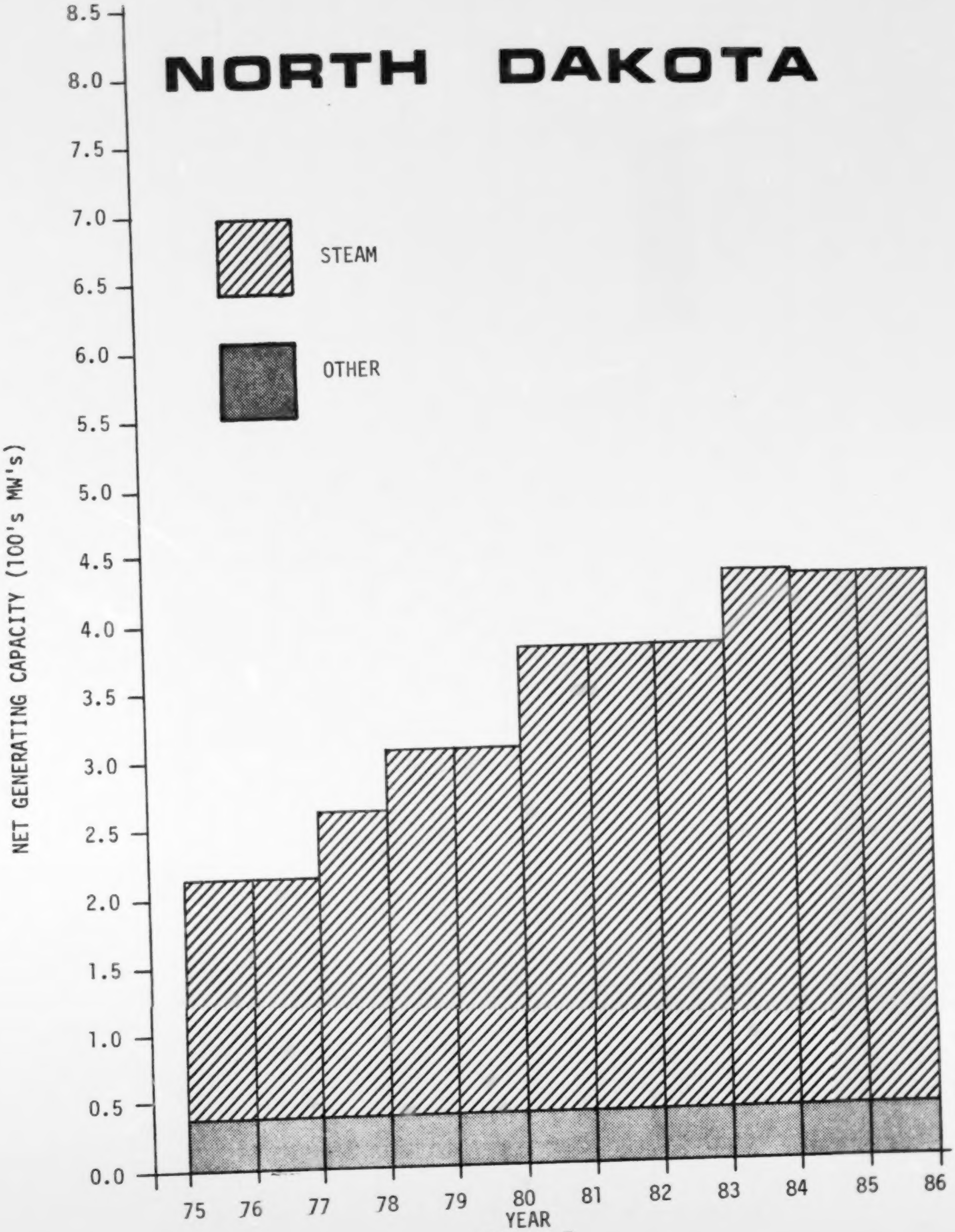
NORTH DAKOTA
STEAM
OTHER
NET GENERATING CAPACITY (100's MW's)
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
75
76
77
78
79
80
81
82
83
84
85
86
YEAR

Figure 7

TABLE 4

NORTH DAKOTA NET GENERATING CAPACITY PROJECTIONS TO DEC. 31, 1986

YEAR ENDING DEC. 31	STEAM ADDITIONS (MW's)	STEAM CUMULATIVE (MW's)	OTHER ADDITIONS (MW's)	OTHER CUMULATIVE (MW's)	TOTAL ADDITIONS (MW's)	TOTAL CUMULATIVE (MW's)
1976	▨	1641.3/1642	▨	508.1/516.2	▨	2149.2/2158.2
1977	0/0	1641.3/1642	0/0	508.1/516.2	0/0	2149.4/2158.2
1978	470/470	2111.3/2112	0/0	508.1/516.2	470/470	2619.4/2628.2
1979	466/466	2577.3/2578	0/0	508.1/516.2	466/466	3085.4/3094.2
1980	0/0	2577.3/2578	0/0	508.1/516.2	0/0	3085.4/3094.2
1981	827.5/827.5	3404.8/3405.5	0/0	508.1/516.2	827.5/827.5	3912.9/3921.7
1982	0/0	3404.8/3405.5	0/0	508.1/516.2	0/0	3912.9/3921.7
1983	0/0	3404.8/3405.5	0/0	508.1/516.2	0/0	3912.9/3921.7
1984	416/416	3820.8/3821.5	0/0	508.1/516.2	416/416	4328.9/4337.7
1985	-16.6/-17.3	3804.2/3804.2	0/0	508.1/516.2	-16.6/-17.3	4312.2/4320.4
1986	0/0	3804.1/3804.2	0/0	508.1/516.2	0/0	4312.3/4320.4

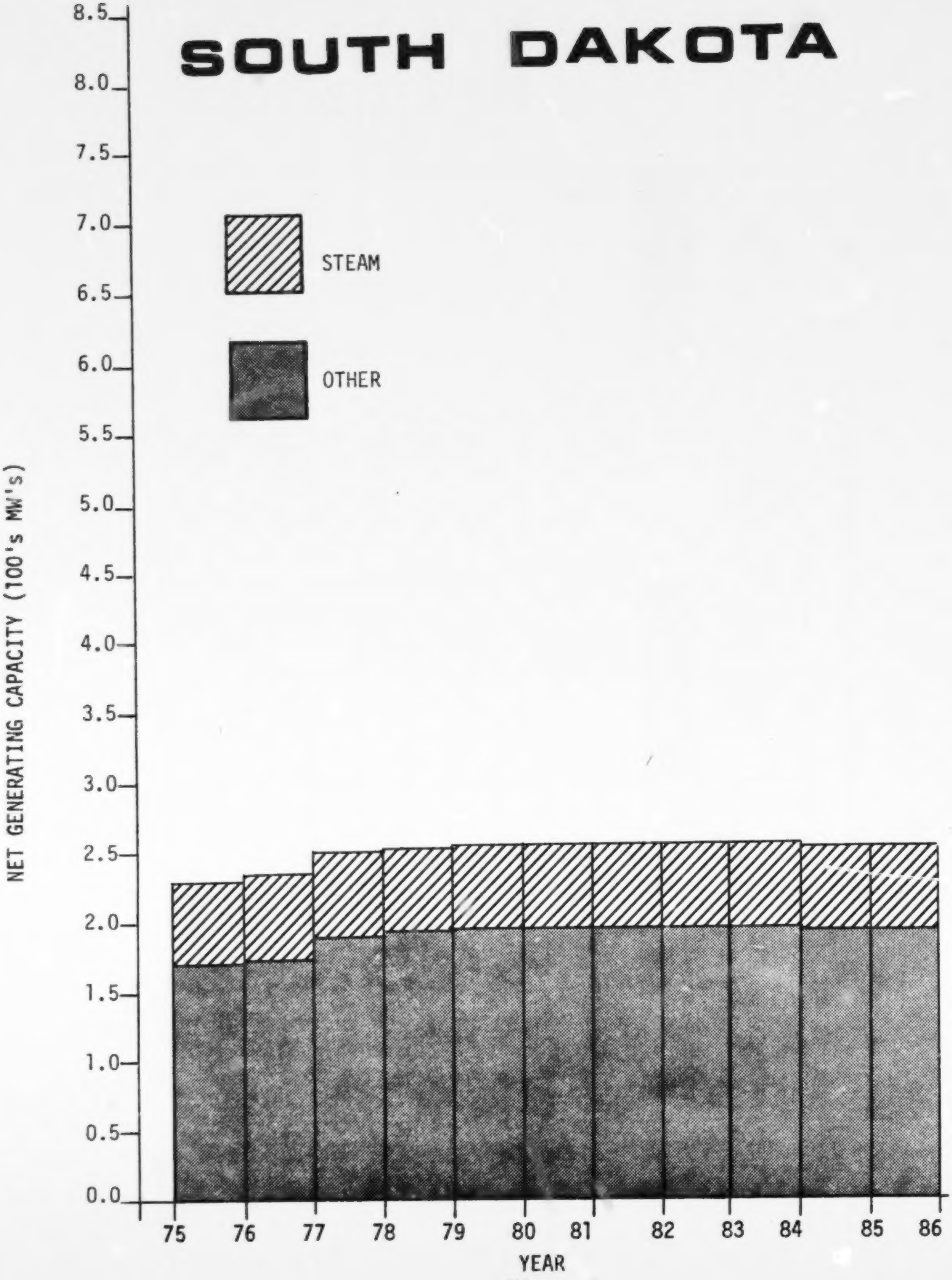
SOUTH DAKOTA
STEAM
OTHER
NET GENERATING CAPACITY (100's MW's)
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
75
76
77
78
79
80
81
82
83
84
85
86
YEAR

Figure 8

TABLE 5

SOUTH DAKOTA NET GENERATING CAPACITY PROJECTIONS TO DEC. 31, 1986

YEAR ENDING DEC. 31	STEAM ADDITIONS (MW's)	STEAM CUMULATIVE (MW's)	OTHER ADDITIONS (MW's)	OTHER CUMULATIVE (MW's)	TOTAL ADDITIONS (MW's)	TOTAL CUMULATIVE (MW's)
1976		602.3/628.1		1681.8/1694.1		2284.1/2322.2
1977	25/0	627.3/628.1	34/54	1715.8/1748.1	59/54	2343.1/2376.2
1978	-15.8/-16.3	611.5/611.8	180.1/204.1	1895.9/1952.2	164.3/187.8	2507.4/2564
1979	0/0	611.5/611.8	17/27	1912.9/1979.2	17/27	2524.4/2591
1980	0/0	611.5/611.8	22/28	1934.9/2007.2	22/28	2546.4/2619
1981	0/0	611.5/611.8	0/0	1934.9/2007.2	0/0	2546.4/2619
1982	0/0	611.5/611.8	0/0	1934.9/2007.2	0/0	2546.4/2619
1983	0/0	611.5/611.8	0/0	1934.9/2007.2	0/0	2546.4/2619
1984	0/0	611.5/611.8	0/0	1934.9/2007.2	0/0	2546.4/2619
1985	0/0	611.5/611.8	-2.4/-2.6	1932.5/2004.6	-2.4/-2.6	2544/2616.4
1986	0/0	611.5/611.8	0/0	1932.5/2004.6	0/0	2544/2616.4

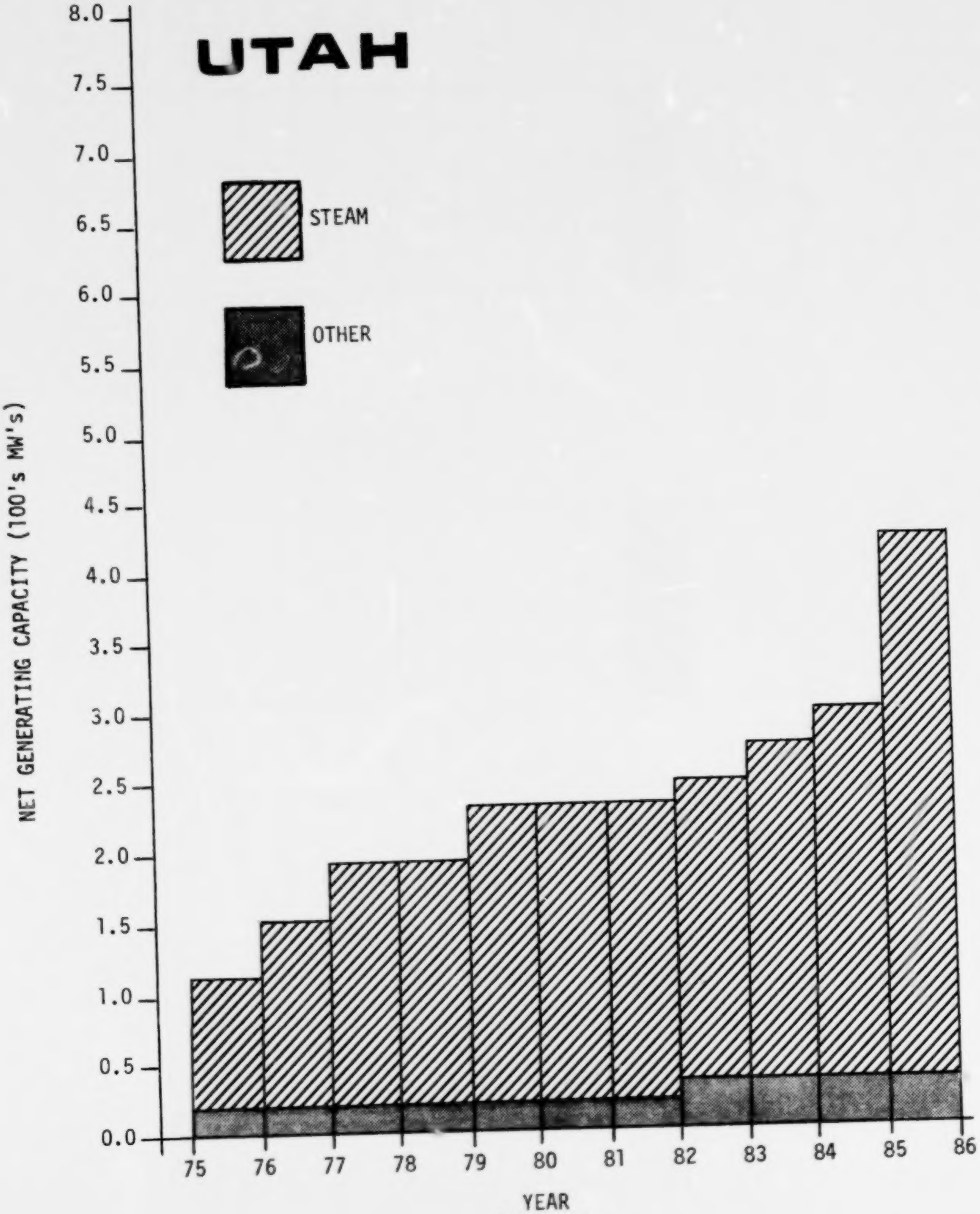
UTAH
STEAM
OTHER
NET GENERATING CAPACITY (100's MW's)
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
75
76
77
78
79
80
81
82
83
84
85
86
YEAR

Figure 9

TABLE 6

UTAH NET GENERATING CAPACITY PROJECTIONS TO DEC. 31, 1986

YEAR ENDING DEC. 31	STEAM ADDITIONS (MW's)	STEAM CUMULATIVE (MW's)	OTHER ADDITIONS (MW's)	OTHER CUMULATIVE (MW's)	TOTAL ADDITIONS (MW's)	TOTAL CUMULATIVE (MW's)
1976	▨	940/940	▨	192/195	▨	1132/1135
1977	400/400	1340/1340	0/0	192/195	400/400	1532/1535
1978	400/400	1740/1740	0/0	192/195	400/400	1932/1935
1979	0/0	1740/1740	0/0	192/195	0/0	1932/1935
1980	400/400	2140/2140	0/0	192/195	400/400	2332/2335
1981	0/0	2140/2140	0/0	192/195	0/0	2332/2335
1982	0/0	2140/2140	0/0	192/195	0/0	2332/2335
1982	0/0	2140/2140	131/131	323/326	131/131	2463/2466
1984	250/250	2390/2390	0/0	323/326	250/250	2713/2716
1985	250/250	2640/2640	0/0	323/326	250/250	2963/2966
1986	1250/1250	3890/3890	0/0	323/326	1250/1250	4213/4216

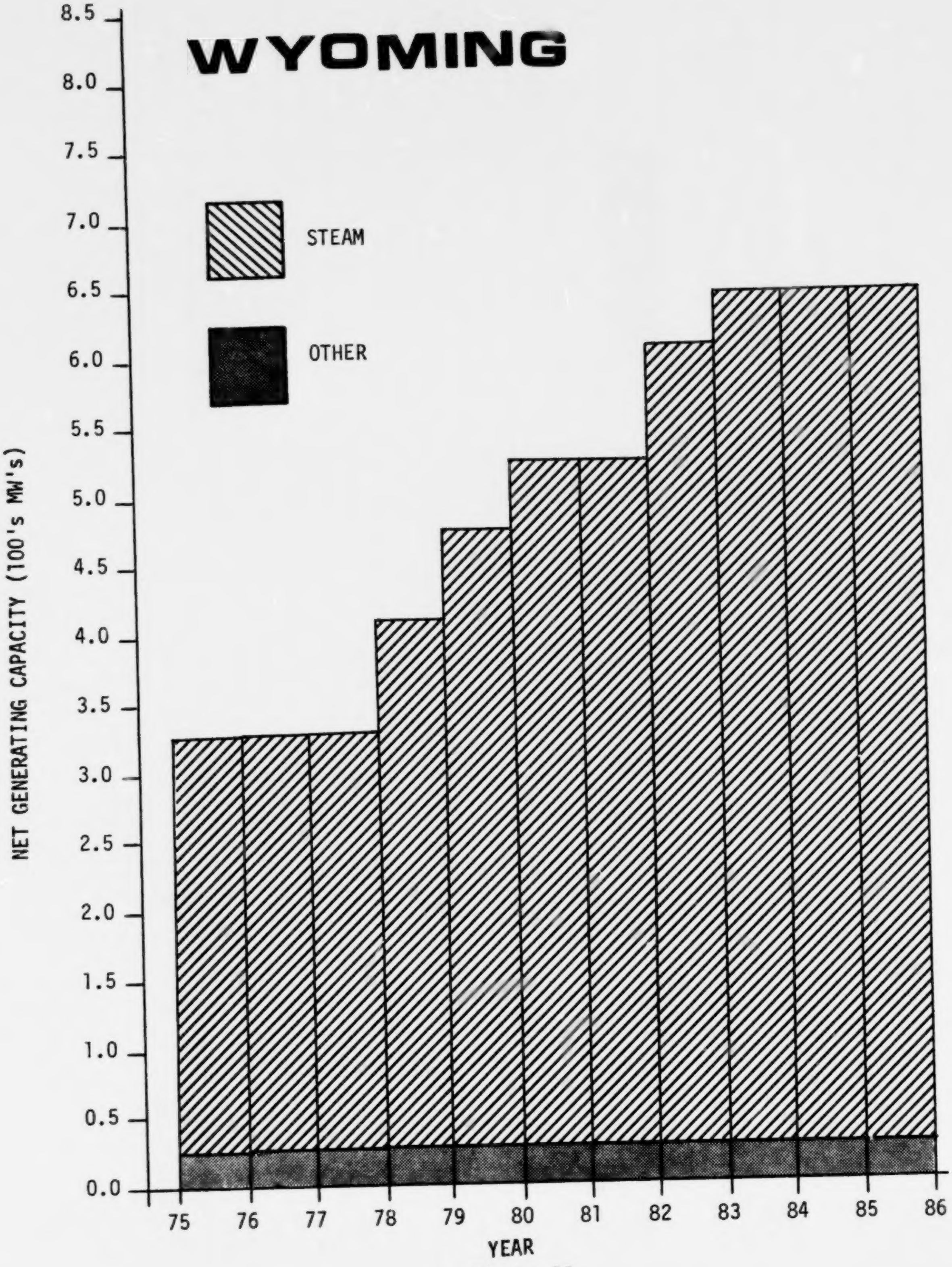
WYOMING
STEAM
OTHER
NET GENERATING CAPACITY (100's MW's)
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
75
76
77
78
79
80
81
82
83
84
85
86
YEAR

Figure 10

TABLE 7

WYOMING NET GENERATING CAPACITY PROJECTIONS TO DEC. 31, 1986

YEAR ENDING DEC. 31	STEAM ADDITIONS (MW's)	STEAM CUMULATIVE (MW's)	OTHER ADDITIONS (MW's)	OTHER CUMULATIVE (MW's)	TOTAL ADDITIONS (MW's)	TOTAL CUMULATIVE (MW's)
1976	▨	3025/3028	▨	250/214	▨	3275/3242
1977	0/0	3025/3025	4/4	254/218	4/4	3279/3246
1978	330/330	3355/3358	0/0	254/218	330/330	3609/3576
1979	500/500	3855/3858	8/8	262/226	508/508	4117/4084
1980	900/900	4755/4758	0/0	262/226	900/900	5017/4984
1981	500/500	5255/5258	0/0	262/226	500/500	5517/5484
1982	0/0	5255/5258	0/0	262/226	0/0	5517/5484
1983	830/830	6085/6088	0/0	262/226	830/830	6347/6314
1984	400/400	6485/6488	0/0	262/226	400/400	6747/6714
1985	0/0	6485/6488	0/0	262/226	0/0	6747/6714
1986	0/0	6485/6488	0/0	262/226	0/0	6747/6714

III. GENERATING FACILITIES

This section provides general state-by-state information on specific electric generating plants in the EPA, Region VIII.

Figures 11 and 12 show individual plant locations by state for general classifications of "steam electric" and "other electric" respectively. The "steam electric" classification in figure 11, includes specific categories of (1) Steam Turbine-Non Nuclear and (5) Combined Cycle. Category (2) Steam-HTGR Nuclear is shown separately. Figure 12 shows facilities identified as "other electric" which includes categories (3) Internal Combustion, (4) Combustion Turbine, (6) Conventional Hydro and (7) Pumped Storage.

The generating facilities are divided into seven categories and further subdivided into existing and projected subcategories. The seven categories are: 1 a and b Steam Turbine - Non Nuclear, 2 a & b Steam - HTGR Nuclear; 3 a & b Internal Combustion, 4 a & b Combustion Turbine, 5 a & b Combined Cycle, 6 a & b Conventional Hydro, and 7 a & b Pumped Storage.

Specific information on existing, as of December 31, 1976, and proposed, through December 31, 1986, generating facilities begin in part A Colorado. Information is provided on the operating utility, as keyed to the system identification codes in Table 8; the plant name, number of units, and location; the size of the units; the primary and alternate type of fuels, also keyed to Table 8; the projected on-line date; and the participants in the facility if appropriate. The information as presented under the heading of "Net Generating Capacity (MW)" represents the net generating capacity of the successive units as identified under the heading units. For example under A. Colorado 1a Steam Turbine - Non Nuclear, the George Birdsall plant is shown to have three units. It is then shown under "Net Generating Capacity (MW)", that the first unit has a net capacity of 17 MW as does the second unit, while the third unit has a net capacity of 23 MW. In some instances individual unit sizes were not available and the net generating capacity is shown as total.

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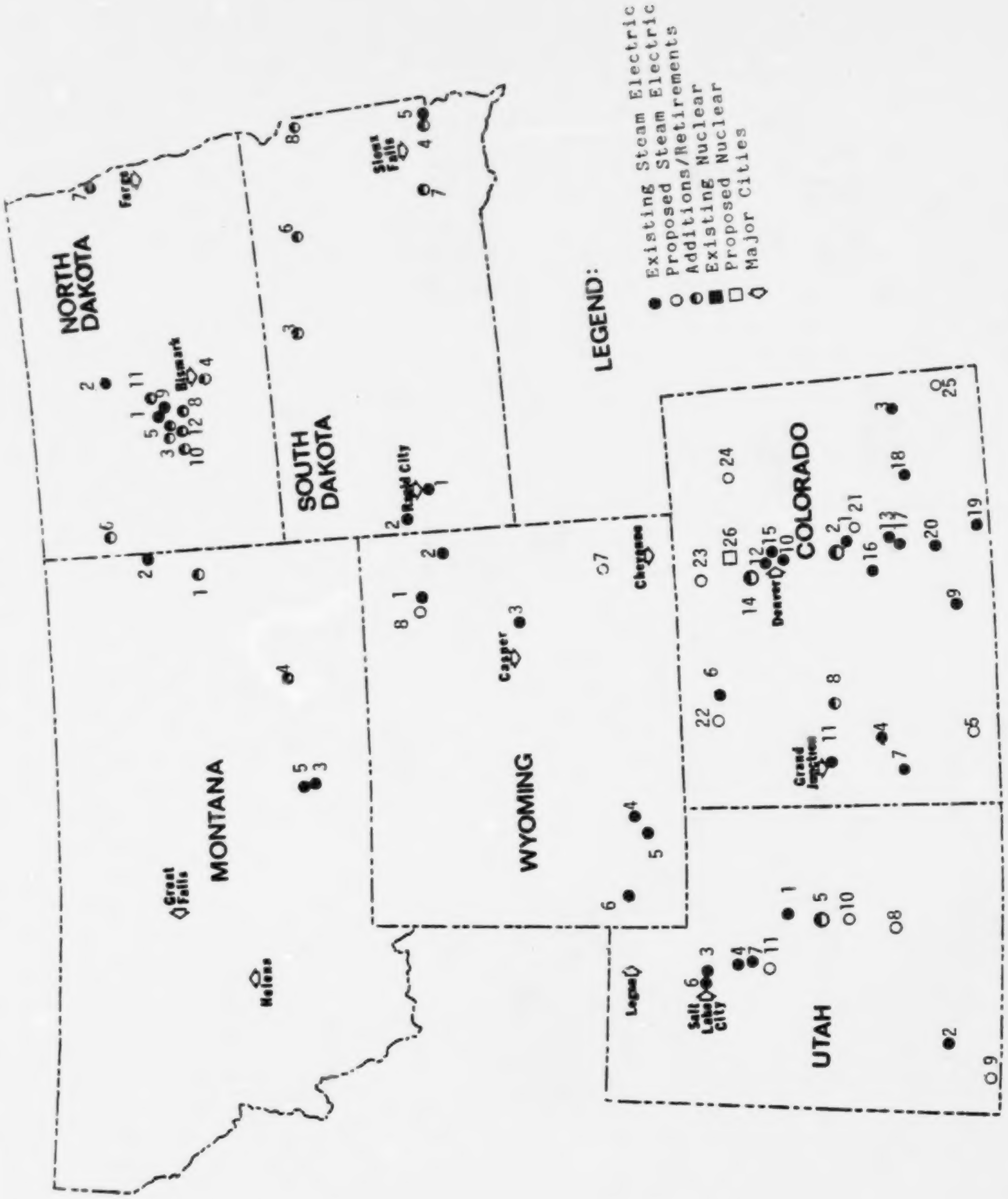
LEGEND:
● Existing Steam Electric
○ Proposed Steam Electrics
◐ Additions/Retirements
■ Existing Nuclear
□ Proposed Nuclear
◇ Major Cities
NORTH DAKOTA
SOUTH DAKOTA
MONTANA
WYOMING
COLORADO
UTAH
Fargo
Bismarck
Sioux Falls
Rapid City
Great Falls
Helena
Casper
Cheyenne
Denver
Grand Junction
Salt Lake City
Logan

Figure 11

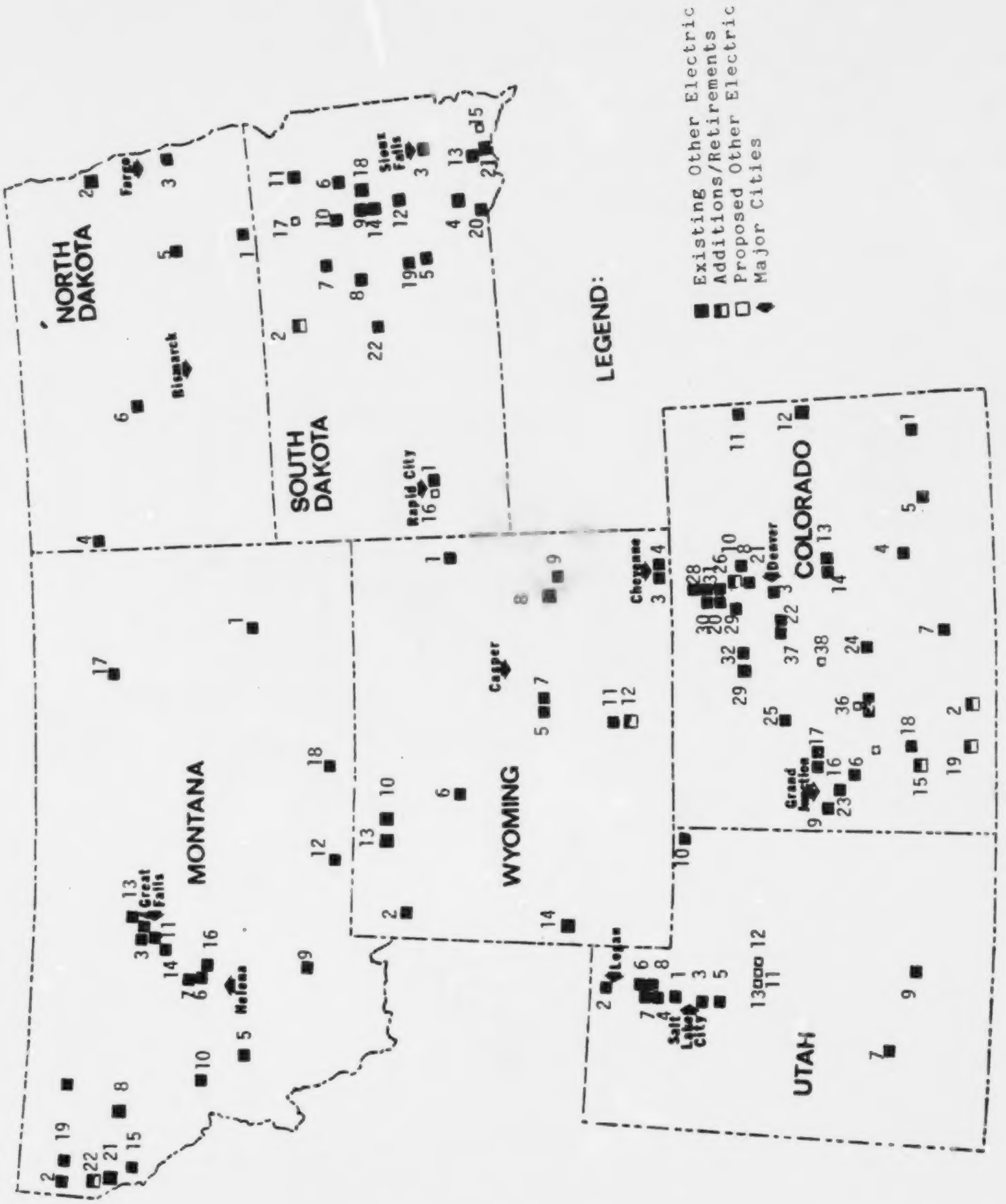
NORTH DAKOTA
SOUTH DAKOTA
MONTANA
WYOMING
COLORADO
UTAH
Bismarck
Fargo
Sioux Falls
Rapid City
Great Falls
Helena
Casper
Cheyenne
Denver
Grand Junction
Logan
Salt Lake City
LEGEND:
■ Existing Other Electric
◧ Additions/Retirements
□ Proposed Other Electric
◆ Major Cities

Figure 12

TABLE 8
System Identification Key

Initials	Utility System
BEPC	Basin Electric Power Cooperative
BHPL	Black Hills Power & Light Company
CCS	City of Colorado Springs
COL	City of Lamar, Colorado
CPA	Cooperative Power Association
CUEA	Colorado-Ute Electric Association
IPC	Idaho Power Company
LDWP	City of Los Angeles Dept. of Water & Power
MDU	Montana-Dakota Utilities Company
MPC	Montana Power Company
MPCI	Minnkota Power Cooperative, Inc.
MPLC	Minnesota Power & Light Company
NEVP	Nevada Power Company
NSPC	Northern States Power Company
NWPS	Northwestern Public Service Company
OTP	Otter Tail Power
PPL	Pacific Power & Light Company
PRPA	Platte River Power Authority
PSC	Public Service of Colorado
SCPC	So. Colorado Power Div. Central Telephone & Utilities Corp.
TRND	Trinidad, City of
TSGT	Tri-State Generation & Transmission Association, Inc.
UPA	United Power Association
UPLC	Utah Power & Light Company
USBR	U.S. Bureau of Reclamation (USBR) Upper Missouri Region-Eastern Area
USCE	U.S. Corps of Engineers (North Pacific Div.)
USLM	U.S.B.R. - Lower Missouri Region
USPN	U.S.B.R. - Pacific Northwest Region
USUC	U.S.B.R. - Upper Colorado Region
WU&L	Walsenburg Utilities and Light Co.
WWPC	Washington Water Power Company

Initial	Fuel Type
C	Coal
G	Natural Gas
O	Oil (both heavy and middle)
N	Nuclear
Q	Water (median head)

III. GENERATING FACILITIES

A. Colorado

1a. Existing Steam Turbine - Non Nuclear

Util.	Name, Units, Location	Net Gen Cap. (MW)		Date	Fuel Prime/Alt.	Codes/ Notes
		Summer	Winter			
CCS	George Birdsall 1-3, Colo. Spgs.	17-17-23	Same		G/O	C1
CCS	Martin Drake 1, 3 & 4, Colo. Spgs.	4-4-10	Same		G/C	C2
CCS	Martin Drake 2A, &2B, Colo. Spgs. (1/80 retire)	2-2	3-3		G/O	C2
CCS	Martin Drake 5-7, Colo Spgs.	52-80-138	Same		C/O	C2
COL	Lamar 1-4, Lamar	2-3-6-28	Same		G/O	C3
CUEA	Bullock 1-2, Montrose (1/80 retire)	6-6	Same		C	C4
CUEA	Durango 2-4, Durango (1/84 retire)	1-1-4	Same		C	C5
CUEA	Hayden 1-2, Hayden	175-261	Same		C	C6
CUEA	Nucla 1-3, Nucla	12-12-12	Same		C	C7
CUEA	Oliver 1-2, Somerset	1-2	Same		C	C8
PSC	Alamosa 4-6, Alamosa	2-5-10	3-5-10		O/G	C9
PSC	Arapahoe 1-4, Denver	45-45-45-101	Same		C/G	C10
PSC	Cameo 1-2, Grand Junction	24-52	Same		C/G	C11
PSC	Cherokee 1-4, Denver	104-107-156-339	Same		C/G	C12
PSC	Comanche 1-2, Pueblo	350-350	Same		C	C13
PSC	Valmont 1-4,Boulder	29-29-29-33	0		G	C14
PSC	Valmont 5, Boulder	175	Same		C	
PSC	Zuni 1-2, Denver	39-48	25-65		O/G	C15
SCPC	W.N. Clark 1-2, Canon City	19-24	Same		C/G	C16
SCPC	Pueblo 1, Pueblo	8	0		G	C17
SCPC	Pueblo 2, Pueblo	8	Same		G	C17
SCPC	Pueblo 3, Pueblo	19	Same		G/O	C17
SCPC	Rocky Ford 1, Rocky Ford	8	Same		G/O	C18
TRND	Trinidad, Trinidad	7	Same		G	C19
WU&L	Walsen Plant, Walsenburg	7	Same		C	C20
	Total Net Generating Capacity	3102	2980			

III. GENERATING FACILITIES

A. Colorado (con't)

1b. Proposed Steam Turbine - Non Nuclear

Util.	Name, Units, Location	Net Gen Cap. (MW) Summer	Winter	Date	Fuel Prime/Alt.	Code/ Notes
CCS	Drake, 2A & B, Colo. Spgs. (Retire)	-4(tot)	-6(tot)	1-80	G/O	C2
CCS	Ray D. Nixon 1, Colo. Spgs.	200	Same	4-80	C	C21
CCS	Ray D. Nixon 2, Colo. Spgs.	200	Same	11-85	C	C21
CUEA	Bullock 1-2, Montrose (Retire)	-12	Same	1-84	C	C4
CUEA	Craig 1, Craig	380	Same	1-79	C	C22/29% CUEA, 29% SRP, 24% TSGT 18% prpa
CUEA	Craig 2, Craig	380	Same	9-79	C	C22/As Above
CUEA	Craig 3, Craig	380	Same	4-82	C	C22/50% CUEA, 50% PSC
CUEA	Craig 4, Craig	380	Same	4-83	C	C/22As Above
CUEA	Durango 2-4, Durango (Retire)	-5	Same	1-84	C	C5
CUEA	Oliver 1-2, Sumerset (Retire)	-3(tot)	Same	1-84	C	C8
PRPA	Rawhide 1, Wellington	200	Same	6-84	C	C23
PSC	Pawnee 1, Fort Morgan	500	Same	7-80	C	C24
PSC	Southeastern 1, Southeastern Co.	500	Same	4-84	C	C25/PSC, TSGT, CU
PSC	Southeastern 2, Southeastern Co.	500	Same	4-86	C	C25/As above
PSC	Valmont 1-4, Boulder (convert to Comb. Cyc)	-72	Same	4-81	G	C14
	Total Generating Capacity	3524	3522			

2a. Existing Steam - HTGR Nuclear

(None commercially operative)

2b. Proposed Steam - HTGR Nuclear

Util.	Name, Units, Location	Summer	Winter	Date	Fuel Prime/Alt.	Code/ Notes
PSC	Ft. St. Vrain 1, Platteville	330	Same	5-77	N	C26
	Total New Generating Capacity	330	330			

III. GENERATING FACILITIES

A. Colorado (Con't)

3a. Existing Internal Combustion

Util.	Name, Units, Location	Net Gen Cap. (MW) Summer	Net Gen Cap. (MW) Winter	Date	Fuel Prime/Alt.	Code/ Notes
COL	Lamar Diesel 1-2, Lamar	1-1	Same		O	CO1
CUEA	Pagosa Diesel, Pagosa Spgs (1-80 retire)	1-1	Same		O	CO2
PSC	Cherokee Diesel, Denver	3	Same		O	CO3
SCPC	Pueblo Diesel, Pueblo	10	Same		O	CO4
SCPC	Rocky Ford Diesel (5), Rocky Ford	10(tot)	Same		O	CO5
USUC	Delta 1-5, Delta	2(tot)	Same		G/O	CO6
USUC	Delta 6-7, Delta	1-2	Same		G/O	CO6
	Total Net Generating Capacity	32	32			

3b. Proposed Internal Combustion

CUEA	Pagosa Diesel, Pagosa Springs (Retire)	-2(tot)	Same	1-80	O	CO2
	Total Net Generating Capacity	-2	-2			

4a. Existing Combustion Turbine

PSC	Alamosa Terminal 1, Alamosa	17	21		O/G	CO7
PSC	Fort Lupton 1-2, Fort Lupton	45-50	Same		O/G	CO8
PSC	Fruita 1, Fruita	19	23		O/G	CO9
PSC	Valmont CT1, Boulder	47	57		O/G	CO10
TSGT	Republican R Stat 1-3, Wray	72-72-72	Same		O	CO11
	Total Net Generating Capacity	394	412			

III. GENERATING FACILITIES

A. Colorado (con't)

4b. Proposed Combustion Turbine

Util.	Name, Units, Location	Net Gen Cap. (MW) Summer	Winter	Date	Fuel Prime/Alt.	Code/ Notes
PSC	Alamosa Terminal 2, Alamosa	17	21	6-77	O/G	C07
PSC	Valmont CT 2-4, Boulder	141	171	4-79	O/G	C010
PSC	Valmont CT 1-4, Boulder	-188	-228	4-81	O/G	C010/converts to cc bustion cycle 4-81)
TSGT	Burlington 1, Burlington	46	51	7-77	O	C012/(peaking unit)
TSGT	Burlington 2, Burlington	46	51	8-77	O	C012/(peaking unit)
	Total New Generating Capacity	62	66			

5a. Existing Combined Cycle

(None)

5b. Proposed Combined Cycle

Util.	Name, Units, Location	Summer	Winter	Date	Fuel Prime/Alt.	Code/ Notes
PSC	Valmont CG 1-4, Boulder	188	228	4-81	O/G	C010
PSC	Valmont CS 1-4, Boulder	80	Same	4-81	O/G	C010
	Total New Generating Capacity	268	308			

6a. Existing Conventional Hydro

Util.	Name, Units, Location	Summer	Winter	Date	Fuel Prime/Alt.	Code/ Notes
CCS	Manitou (2), Manitou Springs	3	2		Q	C013
CCS	Ruxton (1), Manitou Springs	1	0		Q	C014
CUEA	Ames (1), Opher	4	4		Q	C015

III. GENERATING FACILITIES

A. Colorado (con't)

6a. Existing Conventional Hydro (con't)

Util.	Name, Units, Location	Net Gen Cap. (MW) Summer	Winter	Date	Fuel Prime/Alt.	Code/ Notes
CUEA	Upper Molina (1), Molina	9	9		Q	C016
CUEA	Lower Molina (1), Molina	5	5		Q	C017
CUEA	Ouray (1), Ouray	1	1		Q	C018
CUEA	Tacoma (3), Durango	7	7		Q	C019
PRPA	Estes Park (1), Estes Park	1	0		Q	C020
PSC	Boulder Hydro (2), Boulder	5(tot)	20		Q	C021
PSC	Georgetown Hydro (2), Georgetown	2(tot)	1(tot)		Q	C022
PSC	Palisade Hydro (2), Grand Junction	2(tot)	3(tot)		Q	C023
PSC	Salida Hydro (2), Salida	2(tot)	Same		Q	C024
PSC	Shoshone Hydro (2), Glenwood Spgs.	15(tot)	13(tot)		Q	C025
USLM	Big Thompson (1), Loveland	5	0		Q	C026
USLM	Estes (3), Estes Park	54(tot)	Same		Q	C027
USLM	Flatiron (3), Loveland	82(tot)	83(tot)		Q	C028
USLM	Green Mountain (2), Kremmling	12(tot)	5(tot)		Q	C029
USLM	Marys Lake (1), Estes Park	8	Same		Q	C030
USLM	Pole Hill (1), Loveland	35	Same		Q	C031
USLM	Williams Fork (1), Parshall	3	1		Q	C032
USUC	Blue Mesa (2), Gunnison	72(tot)	Same		Q	C033
USUC	Morrow Point (1), Gunnison	146	Same		Q	C034
	Total Net Generating Capacity	474	471			

6b. Proposed Conventional Hydro

Util.	Name, Units, Location	Summer	Winter	Date	Fuel Prime/Alt.	Code/Notes
USUC	Crystal 1, Gunnison	31	Same	10-77	Q	C035
USUC	Morrow Point 2, Gunnison	69(design)	Same	4-77	Q	C036 Capacity not fi until Crystal D complete
Total Net Generating Capacity		100	100			

III. GENERATING FACILITIES

A. Colorado (con't)

7a. Existing Pumped Storage

Util.	Name, Units, Location	Net Gen Cap. (MW) Summer	Net Gen Cap. (MW) Winter	Date	Fuel Prime/Alt.	Code/ Notes
PSC	Cabin Creek (2), Georgetown	162	268		Q	C037
	Total Net Generating Capacity	162	268			

7b. Proposed Pumped Storage

Util.	Name, Units, Location	Net Gen Cap. (MW) Summer	Net Gen Cap. (MW) Winter	Date	Fuel Prime/Alt.	Code/ Notes
USLM	Mount Elbert 1, Leadville	100	Same	10-77	Q	C038
	Total Net Generating Capacity	100	100			

III. GENERATING FACILITIES

B. Montana

1a. Existing Steam Turbine - Non Nuclear

Util.	Name, Units, Location	Net Gen Cap. (MW) Summer	Net Gen Cap. (MW) Winter	Date	Fuel Prime/Alt.	Code/ Notes
MDU	Glendive 1-2, Glendive (5-85 retire)	6.4(tot)	7.3(tot)		C	M1
MDU	Lewis & Clark 1, Sidney	43.8	50.9		C	M2
MPC	Bird, Billings	70	Same		O /G	M3
MPC	Colstrip 1-2, Colstrip	330(each)	Same		C	M4/50% MPC 50% PS
MPC	Corette, Billings	180	Same		C	M5
	Total Net Generating Capacity	960.2	968.2			

1b. Proposed Steam Turbine - Non nuclear

Util.	Name, Units, Location	Net Gen Cap. (MW) Summer	Net Gen Cap. (MW) Winter	Date	Fuel Prime/Alt.	Code/ Notes
MDU	Glendive 1-2, Glendive (retire)	-6.4(tot)	-7.3(tot)	5-85	C	M1
MPC	Colstrip 3, Colstrip	700	Same	10-80	C	M4/30% MPC 25% PS 20% PGE, 15% WWPC, 10% P
MPC	Colstrip 4, Colstrip	700	Same	8-81	C	M4/(As above)
	Total Net Generating Capacity	1393.6	1392.7			

2a. Existing Steam - HTGR Nuclear

(None)

2b. Proposed Steam - HTGR Nuclear

(None)

III. GENERATING FACILITIES

B. Montana (con't)

Util.	Name, Units, Location	Net Gen Cap. (MW) Summer	Net Gen Cap. (MW) Winter	Date	Fuel Prime/Alt.	Code/ Notes
3a. Existing Internal Combustion						
MDU	Miles City 1, Miles City	21.6	29.4		G	M01
	Total Net Generating Capacity	21.6	29.4			
3b. Proposed Internal Combustion						
	(None)					
4a. Existing Combustion Turbine						
PPL	Libby Turbine, Libby	28	Same		O	M02
	Total Net Generating Capacity	28	28			
4b. Proposed Combustion Turbine						
MDU	Glendive GT-1, Glendive	21.6	29.4	5-79	O	M1
	Total Net Generating Capacity	21.6	29.4			
5a. Existing Combined Cycle						
	(none)					
5b. Proposed Combined Cycle						
	(None)					

III. GENERATING FACILITIES

B. Montana (con't)

6a. Existing Conventional Hydro

Util.	Name, Units, Location	Net Gen Cap. (MW) Summer	Winter	Date	Fuel Prime/Alt.	Code/ Notes
MPC	Black Eagle (3), Missouri R.	18	Same		Q	MO3
MPC	Cochrane (2), Missouri R.	50	Same		Q	MO4
MPC	Flint Creek (2), Flint Cr.	1	Same		Q	MO5
MPC	Hauser (6), Missouri R.	17	Same		Q	MO6
MPC	Holter (4), Missouri R.	49	Same		Q	MO7
MPC	Kerr (3), Flathead R.	180	Same		Q	MO8
MPC	Madison (4), Madison R.	9	Same		Q	MO9
MPC	Milltown (5), Clark Fork R.	3	Same		Q	MO10
MPC	Morony (2), Missouri R.	47	Same		Q	MO11
MPC	Mystic (2), West Rosebud R.	12	Same		Q	MO12
MPC	Rainbow (8), Missouri R.	35	Same		Q	MO13
MPC	Ryan (6), Missouri R.	60	Same		Q	MO14
MPC	Thompson Falls (6), Clark Fork R.	40	Same		Q	MO15
USBR	Canyon Ferry (3), Canyon Ferry	60	Same		Q	MO16
USBR	Ft. Peck (5), Fort Peck	199	Same		Q	MO17
USBR	Yellowtail (4), Hardin	288	263		Q	MO18
USCE	Libby (4), Kootenay R.	483	452		Q	MO19

III. GENERATING FACILITIES

B. Montana (con't)

6a. Existing Conventional Hydro (con't)

Util	Name, Units, Location	Net Gen Cap. (MW) Summer	Net Gen Cap. (MW) Winter	Date	Fuel Prime/Alt.	Code/ Notes
USPN	Hungry Horse (4), S. Fork Flathead	328	243		Q	MO20
WWPC	Cabinet Gorge (4), Clark Fork R.	230	Same		Q	MO21
WWPC	Noxon Rapids (4), Clark Fork R.	430	Same		Q	MO22
	Total Net Generating Capacity	2539	2398			

6b. Proposed Conventional Hydro

Util	Name, Units, Location	Net Gen Cap. (MW) Summer	Net Gen Cap. (MW) Winter	Date	Fuel Prime/Alt.	Code/ Notes
USCE	Libby Units (5-8), Kootenay R.	484(tot)	268(tot)	11-83	Q	MO19
USCE	Libby Rereg 1, Kootenay R.	15	Same	12-83	Q	MO19
USCE	Libby Rereg 2, Kootenay R.	30	Same	2-84	Q	MO19
USCE	Libby Rereg 3-4, Kootenay R.	60(tot)	Same	4-84	Q	MO19
WWPC	Noxon Rapids 5, Clark Fork R.	125	Same	11-77	Q	MO19
	Total Net Generating Capacity	714	498			

7a. Existing Pumped Storage

(None)

7b. Proposed Pumped Storage

(None)

III. GENERATING FACILITIES

C. North Dakota

1a. Existing Steam Turbine - Non Nuclear

Util.	Name, Units, Location	Net Gen Cap. (MW) Summer	Net Gen Cap. (MW) Winter	Date	Fuel Prime/Alt.	Code/ Notes
BEPC	Leland Olds 1-2, Stanton	217-433	Same		C	ND1
BEPC	William J. Neal 1, Voltaire	36	Same		C	ND2
MDU	Dakota 3, Beulah (5-85 retire)	8.2	8.6		C	ND3
MDU	Heskett 1-2, Mandan	28-73	Same		C	ND4
MDU	Knife River 1-2, Beulah (5-85 retire)	6.0 (tot)	6.3 (tot)		C	ND5
MDU	Williston 1, Williston (5-85 retire)	2.4	Same		C	ND6
MPCI	Franklin P. Wood 1-3, Grand Forks	23 (tot)	Same		C	ND7
MPCI	Milton R. Young 1, Center	240	Same		C	ND8
MPLC	Milton R. Young 2, Center (shared in 1-85)	408	Same		C	ND8
UPA	Stanton 1, Stanton	166.7	Same		C	ND8
	Total Net Generating Capacity	1641.3	1642			

1b. Proposed Steam Turbine - Non Nuclear

Util.	Name, Units, Location	Net Gen Cap. (MW) Summer	Net Gen Cap. (MW) Winter	Date	Fuel Prime/Alt.	Code/ Notes
BEPC	Antelope Valley 1, Beulah	416	Same	9/81	C	ND10
BEPC	Antelope Valley 2, Beulah	416	Same	9/84	C	ND10
CPA	Coal Creek 1, Underwood	470	Same	11/78	C	ND11/255 MW CPA 21 MW UPA
CPA	Coal Creek 2, Underwood	466	Same	11/79	C	ND11/As above
MDU	Dakota 3, Beulah	-8.2	-8.6	5-85	C	ND3/ Retire
MDU	Knife River 1-2, Beulah	-6.0 (tot)	-6.3(tot)	5-85	C	ND4/Retire
MDU	Williston 1, Williston	-2.4	Same	5-85	G	ND5/Retire
MPCI	Milton R. Young 2, Center	120.0	120.0	1-85	C	ND8/(Share additi
MPLC	Milton R. Young, Center	-120.0	-120.0	1-85	C	ND8/(Share derate
OTP	Coyote 1, Beulah	411.5	411.5	5-81	C	ND12/35% OTP, 30% MPCI, 20% MDU 10% NWPS, 5% MPLC
	Total Net Generating Capacity	2162.9	2162.2			

III. GENERATING FACILITIES

C. North Dakota (con't)

Util.	Name, Units, Location	Net Gen Cap. (MW)		Date	Fuel	Code/
		Summer	Winter		Prime/Alt.	Notes
2a.	**Existing Steam - HTGR Nuclear**					
	(None)					
2b.	**Proposed Steam - HTGR Nuclear**					
	(None)					
3a.	**Existing Internal Combustion**					
MDU	Ellendale 1-2, Ellendale	2.6(tot)	2.8(tot)		O	ND01
MPCI	Grand Forks 1 (1-6), Grand Forks	5.1(tot)	Same		O	ND02
MPCI	Grand Forks 2 (7-11). Grand Forks	5.5(tot)	Same		O	ND02
MPCI	Harwood 1-3, Harwood	4.8(tot)	Same		O	ND03
	Total Net Generating Capacity	18	18.2			
3b.	**Proposed Internal Combustion**					
	(None)					
4a.	**Existing Combustion Turbine**					
MDU	Williston 2-3, Williston	10(tot)	Same		G	ND04
OTP	Jamestown 1, Jamestown	21.1	29.0		O	ND05
	Total Net Generating Capacity	31.1	39.0			

III. GENERATING FACILITIES

C. North Dakota (con't)

Util.	Name, Units, Location	Net Gen Cap. (MW) Summer	Winter	Date	Fuel Prime/Alt.	Code Notes
	4b. Proposed Combustion Turbine					
	(None)					
	5a. Existing Combined Cycle					
	(None)					
	5b. Proposed Combined Cycle					
	(None)					
	6a. Existing Conventional Hydro					
USBR	Garrison 1, Garrison	91.0	Same		Q	ND06
USBR	Garrison 2-5, Garrison	92.0 (each)	Same		Q	ND06
	Total Net Generating Capacity	459	459			
	6b. Proposed Conventional Hydro					
	(None)					
	7a. Existing Pumped Storage					
	(None)					
	7b. Proposed Pumped Storage					
	(None)					

III. GENERATING FACILITIES

D. South Dakota

1a. Existing Steam Turbine - Non Nuclear

Util.	Name, Units, Location	Net Gen Cap. (MW) Summer	Net Gen Cap. (MW) Winter	Date	Fuel Prime/Alt.	Code/ Notes
BHPL	Ben French, Rapid City	22	Same		C/O	SD1
BHPL	Kirk 1-3, Lead	5.0(each)	Same		C	SD2/low pressure peaking only
BHPL	Kirk 4, Lead	16.0	Same		C	SD2
MDU	Mobridge 2, Mobridge (9-77 retire)	8.5	Same		C	SD3
NSPS	Lawrence 1-3, Sioux Falls (12-77 retire)	12-21-21	Same		C	SD4
NSPS	Pathfinder 1, Sioux Falls	65.0	Same		O	SD5
NWPS	Aberdeen 3, Aberdeen (11-78 retire)	7.3	7.8		C	SD6
NWPS	Mitchell 3, Mitchell (11-78 retire)	8.5	8.8		C	SD7
OTP	Big Stone 1, Big Stone Lake	415	440		C	SD8/47.5% OTP, 32.5% NPC 20% MDU
	Total Net Generating Capacity	602.3	628.1			

1b. Proposed Steam Turbine - Non Nuclear

Util.	Name, Units, Location	Net Gen Cap. (MW) Summer	Net Gen Cap. (MW) Winter	Date	Fuel Prime/Alt.	Code/ Notes
NWPS	Aberdeen 3, Aberdeen (Retire)	-7.3	-7.8	11-78	C	SD6
NWPS	Mitchell 3, Mitchell (retire)	-8.5	-8.8	11-78	C	SD7
OTP	Big Stone 1, Big Stone Lake	25.0	0.0	10-77	C	SD8/Uprate 47.5% OTF 32.5% NWPC, 20% MDU
	Total Net Generating Capacity	9.2	-16.6			

III. GENERATING FACILITIES

D. South Dakota (con't)

2a. Existing Steam-HTGR Nuclear

(None)

Util.	Name, Units, Location	Net Gen Cap. (MW) Summer	Net Gen Cap. (MW) Winter	Date	Fuel Prime/Alt.	Code/ Notes
2b. Proposed Steam - HTGR Nuclear						
	(None)					
3a. Existing Internal Combustion						
BHPL	Ben French IC 1-5, Rapid City	2(each)	Same		0	SD01/Cold start eme gency peaking
MDU	Mobridge 1+2, Mobridge (5-85 retire)	2.4(tot)	2.6(tot)		0	SD02
NSPC	Salem 1-3, Salem	1.6(tot)	Same		0	SD03
NWPS	Armour 1-3, Armour	4.5(tot)	Same		0	SD04
NWPS	Chamberlain 1-4, Chamberlain	6.7(tot)	7.0(tot)		0	SD05
NWPS	Clark 1, Clark	2.7	Same		0	SD06
NWPS	Faulkton 1, Faulkton	2.6	2.7		0	SD07
NWPS	Highmore 1-2, Highmore	1.8(tot)	2.0(tot)		0	SD08
NWPS	Mobile Unit 1, Huron	0.5	Same		0	SD09
NWPS	Redfield 1-3, Redfield	3.9(tot)	4.0(tot)		0	SD10
NWPS	Webster 1-2, Webster	2.6(tot)	2.7(tot)		0	SD11
NWPS	Woonsocket 1, Woonsocket	1.0	1.3		0	SD12
NWPS	Yankton New 1-3, Yankton	11.4(tot)	Same		0	SD13

III. GENERATING FACILITIES

D. South Dakota (con't)

Util.	Name, Units, Location	Net Gen Cap. (MW) Summer	Net Gen Cap. (MW) Winter	Date	Fuel Prime/Alt.	Code/ Notes
3a. Existing Internal Combustion (Con't)						
NWPS	Yankton Old 1,2,4 & 5, Yankton	7.3(tot)	Same		0	SD013
	Total Net Generating Capacity	59.0	60.3			
3b. Proposed Internal Combustion						
MDU	Mobridge 1+2, Mobridge (retire)	-2.4	-2.6	5-85	0	SD02
	Total Net Generating Capacity	-2.4	-2.6			
4a. Existing Combustion Turbine						
NWPS	Huron 1, Huron	11.8	14.8		0	SD014
	Total Net Generating Capacity	11.8	14.8			
4b. Proposed Combustion Turbine						
BEPC	Spirit Mound 1-2, Gayville	120	Same	5-78	0	SD015
BHPL	Ben French CT 1-2, Rapid City	17(each)	27(each)	5-77	0	SD016
BHPL	Ben French CT-3, Rapid City	17	27	5-78	0	SD016
BHPL	Ben French CT-4, Rapid City	17	27	5-79	0	SD016
NWPS	Aberdeen GT-1, Aberdeen	22	28	5-78	0	SD017
NWPS	Mitchell GT-1, Mitchell	22	28	5-80	0	SD017

III. GENERATING FACILITIES

D. South Dakota (con't)

5a. Existing Combined Cycle

Util.	Name, Units, Location	Net Gen Cap. (MW) Summer	Net Gen Cap. (MW) Winter	Date	Fuel Prime/Alt.	Code/ Notes
OTP	Lake Preston 1, Lake Preston	21.1	29.1	5-78	0	SD018
	Total Net Generating Capacity	231.1	313.0			

5a. Existing Combined Cycle

(None)

5b. Proposed Combined Cycle

(None)

6a. Existing Conventional Hydro

Util.	Name, Units, Location	Net Gen Cap. (MW) Summer	Net Gen Cap. (MW) Winter	Date	Fuel Prime/Alt.	Code/ Notes
USBR	Big Bend 1-4, Ft. Thompson	61.0(each)	66.0(each)		Q	SD019
USBR	Big Bend 5-8, Ft. Thompson	60.0(each)	65.0(each)		Q	SD019
USBR	Ft. Randall 1-5, Fort Randall	43.0(each)	39.0(each)		Q	SD020
USBR	Ft. Randall 6-8, Fort Randall	42.0(each)	38.0(each)		Q	SD020
USBR	Gavins Point 1-3, Gavins Point	34.0(each)	Same		Q	SD021
USBR	Oahe 1-5, Oahe	98.0(each)	Same		Q	SD022
USBR	Oahe 6-7, Oahe	97.0(each)	Same		Q	SD022
	Total Net Generating Capacity	1611	1619			

III. GENERATING FACILITIES

D. South Dakota (continued)

Util	Name, Units, Location	Net Gen Cap. (MW) Summer	Net Gen Cap. (MW) Winter	Date	Fuel Prime/Alt.	Code/ Notes
6b. Proposed Conventional Hydro						
	(None)					
7a. Existing Pumped Storage						
	(None)					
7b. Proposed Pumped Storage						
	(None)					
E. Utah						
1a. Existing Steam Turbine - Non Nuclear						
UPLC	Carbon 1-2, Castle Gate	66-105	Same		C	U1
UPLC	Cal Pac Utl Co., Cedar City	7	Same		C	U2/Non Member - 2 units
UPLC	Gadsby, Salt Lake City	66	Same		G	U3
UPLC	Gadsby 2-3, Salt Lake City	75-105	Same		C	U3
UPLC	Hale 1-2, Orem	18-45	Same		C	U4
UPLC	Huntington 2, Huntington	415	Same		C	U5
UPLC	Jordan 3, Salt Lake City	24	Same		O	U6
USUC	Provo City 1-4, Provo	14 (tot)	Same		G/C	U7
	Total Net Generating Capacity	940	940			

III. GENERATING FACILITIES

E. Utah (Con't)

Util.	Name, Units, Location	Net Gen Cap. (MW) Summer	Net Gen Cap. (MW) Winter	Date	Fuel Prime/Alt.	Code/ Notes
1b. Proposed Steam Turbine - Non Nuclear						
LDWP	Intermountain 1, Wayne County	750	Same	1-86	C	U8/50% LDWP, 15% Anaheim, 15% ICPA, 10% Riverside, 5% PASA, 2.5% BURB, 2.5% Glen.
NEVP	Warner Valley 1, St. George	250	Same	6-84	C	U9/ 50% LDWP, 25% NEVP, 25% St. George
NEVP	Warner Valley 2, St. George	250	Same	6-85	C	U9/(as above)
UPLC	Emery 1, Emery County	400	Same	6-78	C	U10
UPLC	Emery 2, Emery County	400	Same	6-80	C	U10
UPLC	Huntington 1, Huntington	400	Same	6-77	C	U5
UPLC	Nephi 1, Nephi	500	Same	6-86	C	U11
	Total Net Generating Capacity	2950	2950			

2a. Existing Steam - HTER Nuclear

(None)

2b. Proposed Steam - HTER Nuclear

(None)

III. GENERATING FACILITIES

E. Utah (Con't)

3a. Existing Internal Combustion

Util.	Name. Units. Location	Net Gen Cap. (MW) Summer	Net Gen Cap. (MW) Winter	Date	Fuel Prime/Alt.	Code/ Notes
3a. Existing Internal Combustion						
USUC	Bountiful City 1-2, Bountiful	8	Same		G/O	U01
USUC	Logan City 2-6, Logan City	4 (tot)	Same		G/O	U02
USUC	Murray City 2-6, Murray	7 (tot)	Same		G/O	U03
	Total Net Generating Capacity	19	19			
3b. Proposed Internal Combustion						
(None)						
4a. Existing Combustion Turbine						
UPLC	Little Mountain, Ogden	15	Same		G	U04
	Total Net Generating Capacity	15	15			
4b. Proposed Combustion Turbine						
(None)						
5a. Existing Combined Cycle						
(None)						
5b. Proposed Combined Cycle						
(None)						

III. GENERATING FACILITIES

E. Utah (con't)

6a. Existing Conventional Hydro

Util.	Name, Units, Location	Net Gen Cap. (MW) Summer	Net Gen Cap. (MW) Winter	Date	Fuel Prime/Alt.	Code/ Notes
UPLC	Olmsted (4), Provo R.	6(tot)	Same		Q	U05
UPLC	Pioneer (2), Ogden R.	4(tot)	Same		Q	U06
UPLC	Upper Beaver (2), Beaver R.	1(tot)	Same		Q	U07
UPLC	Weber (1), Weber R.	2	Same		Q	U08
USUC	Boulder (3), Boulder	3(tot)	Same		Q	U09
USUC	Flaming Gorge (3), Dutch John	132(tot)	Same		Q	U010
USUC	Misc. Hydro (30), Utah	10	13		Q	-
	Total Net Generating Capacity	158	161			

6b. Proposed Conventional Hydro

USUC	Dyne, New Thistle	33	Same	1-83	Q	U011
USUC	Sixth Water (2), New Thistle	45(each)	Same	1-83	Q	U012
USUC	Syar, Near Thistle	8	Same	1-83	Q	U013
	Total Net Generating Capacity	131	131			

7a. Existing Pumped Storage

(None)

7b. Proposed Pumped Storage

(None)

III. GENERATING FACILITIES

F. Wyoming

1a. Existing Steam Turbine - Non Nuclear

Util.	Name, Units, Location	Net Gen Cap. (MW) Summer	Winter	Date	Fuel Prime/Alt.	Code/ Notes
BHPL	Neil Simpson 1, 3-5, Wyodak	2-1-1-16	2-1-2-18		C	W1
BHPL	Osage 1-3, Osage	10(each)	Same		C	W2
PPLC	Dave Johnston 1-4, Glenrock	100-100-220-330	Same		C	W3/ Mine mouth
PPLC	Jim Bridger 1-3, Rock Springs	500(each)	Same		C	W4/ 67% PPLC, 33% IPC
PPLC	Trona, Green R.	15	Same		G/O	W5
UPLC	Naughton 1-3, Kemmerer	160-220-330	Same		C	W6
	Total Net Generating Capacity	3025	3028			
1b. Proposed Steam Turbine - Non Nuclear						
BEPC	Laramie R. Station 1, Wheatland	500	Same	4-80	C	W7/42% BEPC, 24% TSGT, 17% MB 13% LE, 5% Heartland Cor 1% Wy. muni power
BEPL	Laramie R. Sta. 2, Wheatland	500	Same	10-81	C	W7/As above
BEPC	Laramie R. Sta. 3, Wheatland	500	Same	4-83	C	W7/As above
BHPL	Wyodak 2, Gillette	330	Same	5-83	C	W8/ 40% BHPL, 60% open
PPLC	Wyodak 1, Gillette	330	Same	5-78	C	W8/ 90% PPLC, 10% BHPL
PPLC	Jim Bridger 4, Rock Springs	500	Same	12-79	C	W4/ 67% PPLC, 33% IPC
UPLC	Naughton 4, Kemmerer	400	Same	4-80	C	W6
UPLC	Naughton 5, Kemmerer	400	Same	6-84	C	W6
	Total Net Generating Capacity	3460	3460			

III. GENERATING FACILITIES

F. Wyoming (con't)

Util.	Name, Units, Location	Net Gen Cap. (MW) Summer	Net Gen Cap. (MW) Winter	Date	Fuel Prime/Alt.	Code Notes
2a.	Existing Steam - HTGR Nuclear					
	(None)					
2b.	Proposed Steam - HTGR Nuclear					
	(None)					
3a.	Existing Internal Combustion					
BHPL	Osage IC, Osage	1	1		0	W01/cold start emergency pe ing
MPC	Lake, Yellowstone Park	3	0		0	W02/Summer only
PSC	Cheyenne Diesel 1-5, Cheyenne	10(tot)	Same		0	W03
PSC	Corlett Diesel 1, Cheyenne	3	Same		0	W04
	Total Net Generating Capacity	17	14			
3b.	Proposed Internal Combustion					
	(None)					
4a.	Existing Combustion Turbine					
	(None)					

III. GENERATING FACILITIES

F. Wyoming (con't)

Util.	Name, Units, Location	Net Gen Cap. (MW) Summer	Net Gen Cap. (MW) Winter	Date	Fuel Prime/Alt.	Code/ Notes
4b.	Proposed Combustion Turbine					
	(None)					
5a.	Existing Combined Cycle					
	(None)					
5b.	Proposed Combined Cycle					
	(None)					
6a.	Existing Conventional Hydro					
USLM	Alcova (2), Alcova	40(tot)	Same		Q	W05
USLM	Boysen (2), Thermopolis	17(tot)	12(tot)		Q	W06
USLM	Fremont Canyon (2), Alcova	55(tot)	50(tot)		Q	W07
USLM	Glendo (2), Glendo	24(tot)	0		Q	W08
USLM	Guernsey (2), Guernsey	7(tot)	o		Q	W09
USLM	Heart Mountain 1, Cody	6	Same		Q	W010
USLM	Kortes (3), Sinclair	39(tot)	Same		Q	W011
USLM	Semmoe (3), Sinclair	25(tot)	37(tot)		Q	W012
USLM	Shoshone (3), Cody	7(tot)	3(tot)		Q	W013
USUC	Fontenelle 1, Kemmerer	13	Same		Q	W014
	Total Net Generating Capacity	233	200			

III. GENERATING FACILITIES

F. Wyoming (con't)

Util.	Name, Units, Location	Net Gen Cap. (MW) Summer	Net Gen Cap. (MW) Winter	Date	Fuel Prime/Alt.	Code/ Notes
6b. Proposed Conventional Hydro						
USLM	Seminoe 1-2, Sinclair	8(tot)	Same	9-79	Q	W012/rebuilt to larger size
USLM	Seminoe 3, Sinclair	4	Same	12-77	Q	W012/(as above)
	Total Net Generating Capacity	12	12			
7a. Existing Pumped Storage						
	(None)					
7b. Proposed Pumped Storage						
	(None)					

IV. PLANT SPECIFIC INFORMATION

This section provides specific information on the individual power plants identified in Section III, category 1a, Existing Steam Turbine - Non Nuclear, of this publication. Not all plants identified in Section III category 1a are included herein as data on some plants was not available.

The plant structural and operation information included in this section were extracted from Federal Power Commission form FPC 67 while the air emission values were calculated. The air emission values as shown were calculated from the fuel composition and consumption data presented in FPC 67 in association with the emission factors presented in EPA publication AP-42, Part A, "Compilation of Air Pollutant Emission Factors," Second Edition. When available the estimates of annual air emissions as presented in FPC 67 were included for comparison.

In some instances plant specific information was extracted from draft and final Environmental Impact Statements for inclusion in this publication.

Table 9 provides the abbreviations of the boiler manufactures, type of boiler firing and emission control equipment manufactures as utilized in this section.

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TABLE 9

PLANT EQUIPMENT

Boiler(s)

Manufacturers:

B&W - The Babcock & Wilcox Co.
CE - Combustion Engineering, Inc.
ERIG - Erie City Iron Works
FW - Foster Wheeler Corp.
RILY - Riley Stoker Corp.
VOGT - Henry Vogt Machine Co., Inc.
OTHE - Other (Specify in footnote)

Type of Firing:

PCFR - Pulverized Coal: Front Firing
PCOP - Pulverized Coal: Opposed Firing
PCTA - Pulverized Coal: Tangential Firing
CYCL - Cyclone
SPRE - Spreader Stoker
OSTO - Other Stoker
FLUI - Fluidized Bed
RFRO - Residual Oil: Front Firing
ROPP - Residual Oil: Opposed Firing
RTAN - Residual Oil: Tangential Firing
GFRO - Gas: Front Firing
GOPP - Gas: Opposed Firing
GTAN - Gas: Tangential Firing
OTHE - Other (Specify in footnote)

Emission Control Equipment

Manufacturers:

AAFC - American Air Filter Co., Inc.
AMST - American Standard, Inc.
BELC - Belco Pollution Control Corp.
BUEL - Buell Engineering Co., Inc.
DUCO - The Ducon Co., Inc.
FIKL - Fischer-Klosterman, Inc.
FULL - Fuller Co., Draco Products
KIRK - Kirk & Blum Manufacturing Co.
KOPP - Koppers Co., Inc.
PPCI - Precipitair Pollution Control, Inc.
PAOA - Precipitation Associates of America, Inc.
PLVR - Pulverizing Machinery Division
COTT - Research-Cottrell, Inc.
SVRS - Seversky Electronatom Corp.
UOP - UOP Air Correction Division
TORI - The Torit Corp.
WEST - Western Precipitation Division
WHEE - Wheelabrator Corp.
ZURN - Zurn Industries, Inc.
OTHE - Other (Specify in footnote)

Flue Gas Mechanical Collectors:

GRAV - Gravitational or baffled chamber
SCTA - Single cyclone-Conventional reverse flow, tangential inlet
MCTA - Multiple cyclones-Conventional reverse flow; tangential inlet.
MCAX - Multiple cyclones-Conventional reverse flow; axial inlet

CYCL - Straight-through-flow cyclones
IMPE - Impeller collector
VENT - Wet collector: Venturi
WETC - Wet Collector: Other (Specify in footnote)
BAGH - Baghouse (Fabric Collector)
OTHE - Other (Specify in footnote)

Electrostatic and Combination Mechanical Electrical Precipitators

E = Electrostatic Precipitator
C = Combined

POWER PLANT SUMMARY FORM

Code No. C1
Data Year 1974/1976

PLANT NAME (Capacity): George Birdsall (52 MW)

OPERATING COMPANY: City of Colorado Springs-Dept of Public Utilities

STATE: Colorado COUNTY: El Paso CITY: Colorado Springs

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): NA

Source: NA

	% S	% Ash	% Moisture	BTU/lb
Average:	NA	NA	NA	NA
Range:	NA	NA	NA	NA

Oil: Consumption (1000 bbls. per year): 6.0

Source: Accent Petroleum

	% S	BTU/Gal
Average:	.7	148,160
Range:	same	same

Gas: Consumption (10^6 Cubic feet Per Year): 847.8

	BTU/Cu Ft
Average:	993
Range:	989-999

POWER PLANT SUMMARY - PAGE 2

cl
Data Year 1974/1976

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: Wet Cooling Towers

Cooling Intake Avg. CFS/source: 0.33/City of Colorado Springs

Cooling Discharge avg. CFR/source: Nil/NP

OPERATING DATA:

Unit No.	1	2	3	
Name Plate Generating Capacity (MW):	17	17	23	
Date Unit on Line:	1953	1954	1957	
Service Stack No.:	1	2	3	
Type of Firing:	RFRO/GFRO	RFRO/GFRO	RFRO/GFRO	
Boiler Manufacturer:	Springfield	Springfield	Springfield	
Operation (hr/yr):	2212	1308	2602	
Fuel Consumption Actual: Coal (MTPY)	NA	NA	NA	
Oil (MBPY)	2.0	1.6	2.4	
Gas (10^6 CFPY)	246	125.4	475.8	
100% feed (rate*/fuel)	32.9/0	32.9/0	44.8/0	
	217/G	217/G	296/G	
Emission Control Equipment:	NA	NA	NA	
Year Installed:	NA	NA	NA	
Manufacturer:	NA	NA	NA	
Efficiency: (Pollutant)	NA	NA	NA	

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

c1

Date Year 1974/1976

STACK PARAMETERS:

Stack No.	1	2	3	
Stack Height (m): (above ground elevation)	44	44	44	
Inside Diameter of Flue: at top (m):	2.3	2.3	2.3	
Flue Gas Rate (cfm X10^3): 100% Load	74	74	74	
75% Load	54.1	54.1	55.2	
Exit Gas Temperature (^{0}F): 100% Load	290	303	315	
75% Load	273	280	265	
Exit Gas Velocity (FPS): 100% Load	27.1	27.1	39.2	
75% Load	19.8	19.8	27.6	
Distance to Next Stack: Center to Center (m)	18	18	-	

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)	11(oil)	11(oil)	15(oil)	
	Avg. (TPY)	5	4.8	7 (Tot. reported 0)	
SO_2:	Max. (lb/hr)	86.7(Oil)	86.7(Oil)	118(oil)	
	Avg. (TPY)	3.9	2.4	5.7(Tot.reported 0)	
NO_x:	Max (lb/hr)	152(gas)	152(gas)	207(gas)	
	Avg (TPY)	324	320	447(Tot.reported 200)	

POWER PLANT SUMMARY FORM

Code No. C2
Data Year 1976

PLANT NAME (Capacity): Martin Drake (287 MW)

OPERATING COMPANY: City of Colorado Springs Dept of Public Utilities

STATE: Colorado COUNTY: El Paso CITY: Colorado Springs

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 726

Source: Edna Mine, Empire Energy Corp. and Sunflower Corp., Colorado

	% S	% Ash	% Moisture	BTU/lb
Average:	.59	9.4	14.31	10,325
Range:	.45-.85	7.2-11.7	12.93-17.12	10,014-10,696

Oil: Consumption (1000 bbls. per year): None

Source: NA

	% S	BTU/Gal
Average:	NA	NA
Range:	NA	NA

Gas: Consumption (10^6 Cubic feet Per Year): 1904.9

	BTU/Cu Ft
Average:	993
Range:	986-1010

POWER PLANT SUMMARY - PAGE 2

c2
Data Year 1976

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: Wet cooling towers

Cooling Intake Avg. CFS/source: 2.7/City of Colorado Springs

Cooling Discharge avg. CFR/source: 0.24/Fountain Creek

OPERATING DATA:

Unit No.	1,2,4	5	6	7
Name Plate Generating Capacity (MW):	15,15,10	50	80	132
Date Unit on Line:	1948,'92,'49	1962	1968	1974
Service Stack No.:	1,2,4	5	6	7
Type of Firing:	RFRO/GFRO	PCFR/GFRO	PCFR/GFRO	PCFR/ GFRO
Boiler Manufacturer:	B&W,B&W	RILY	B&W	B&W
Operation (hr/yr):	484	6786	8033	7210
Fuel Consumption Actual: Coal (MTPY)		120.6	225.9	387.8
Oil (MBPY)	none	none	none	none
Gas (10^6 CFPY)	55	591.7	440.8	817.4
100% feed (rate*/fuel)	$23^{c}/199g$	$31^{c}/599g$	$39^{c}/865g$	$61^{c}/1341g$
Emission Control Equipment:	none	M&ESP	MFESP	ESP
Year Installed:	NA	1971	1968	1974
Manufacturer:	NA	AMST	UOP	AMST
Efficiency: (Pollutant)	NA	99.6 TSP	99.6 TSP	99.2 TSP

*Rates: Coal in Tons/nr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

c2

Date Year 1976

STACK PARAMETERS:

Stack No.	1,2	4	5	6
Stack Height (m): (above ground elevation)	17	39	62	62
Inside Diameter of Flue: at top (m):	1.9	1.4	3.3	3.8
Flue Gas Rate (cfm X10^3): 100% Load	53.15	65.6	176.0	277.0
75% Load	38.0	48.3	134.0	212.0
Exit Gas Temperature ($^{\circ}$F): 100% Load	312	292	240	243
75% Load	290	272	226	227
Exit Gas Velocity (FPS): 100% Load	28.9	68.9	30.9	37
75% Load	20.6	50.7	23.6	28.4
Distance to Next Stack: Center to Center (m)	14.5/29.4	26.4	40.6	43.1

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)	Neg -	Neg -	18.8	23.7
	Avg. (TPY)	-	-	29.4	55.2
SO_2:	Max. (lb/hr)	73,73	73	1001	1259
	Avg. (TPY)	-	-	1350	2530
NO_x:	Max (lb/hr)	104,104	104	1349	1775
	Avg (TPY)			1809	3388

POWER PLANT SUMMARY - PAGE 3 (Continued) c2

Date Year 1976

STACK PARAMETERS:

Stack No.	7			
Stack Height (m): (above ground elevation)	62			
Inside Diameter of Flue: at top (m):	4.7			
Flue Gas Rate (cfm X10^3): 100% Load	497.0			
75% Load	380.0			
Exit Gas Temperature (^oF): 100% Load	250			
75% Load	234			
Exit Gas Velocity (FPS): 100% Load	43.8			
75% Load	33.5			
Distance to Next Stack: Center to Center (m)	-			

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)	74.2			
	Avg. (TPY)	189.5			
SO_2:	Max. (lb/hr)	1970			
	Avg. (TPY)	4343			
NO_x:	Max (lb/hr)	2768			
	Avg (TPY)	5817			

POWER PLANT SUMMARY FORM

Code No. C3
Data Year 1976

PLANT NAME (Capacity): Unit #6 (25 MW)

OPERATING COMPANY: Utilities Board of the City of Lamar

STATE: Colorado COUNTY: Prowers CITY: Lamar 81502

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): None

Source: NA

	% S	% Ash	% Moisture	BTU/lb
Average:	NA	NA	NA	NA
Range:	NA	NA	NA	NA

Oil: Consumption (1000 bbls. per year): .043

Source: NP

	% S	BTU/Gal
Average:	.2	145000
Range:	NP	NP

Gas: Consumption (10^6 Cubic feet Per Year): 1338

	BTU/Cu Ft
Average:	984
Range:	962-996

POWER PLANT SUMMARY - PAGE 2

C3

Data Year 1976

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: Once-through flow

Cooling Intake Avg. CFS/source: 20.1/wells

Cooling Discharge avg. CFR/source: 20.1/Arkansas River via Lamar Canal

OPERATING DATA:

Unit No.	6			
Name Plate Generating Capacity (MW):	25			
Date Unit on Line:	1972			
Service Stack No.:	4			
Type of Firing:	GFRO/RFRO			
Boiler Manufacturer:	CE			
Operation (hr/yr):	8528			
Fuel Consumption Actual: Coal (MTPY)	none			
Oil (MBPY)	.043			
Gas (10^6 CFPY)	1338			
100% feed (rate*/fuel)	66/0 318/G			
Emission Control Equipment:	None			
Year Installed:	NA			
Manufacturer:	NA			
Efficiency: (Pollutant)	NA			

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

C3

Date Year 1976

STACK PARAMETERS:

Stack No.	4			
Stack Height (m): (above ground elevation)	21.2			
Inside Diameter of Flue: at top (m):	2.1			
Flue Gas Rate (cfm X10^3): 100% Load	101.2			
75% Load	76.4			
Exit Gas Temperature (°F): 100% Load	300			
75% Load	288			
Exit Gas Velocity (FPS): 100% Load	43.8			
75% Load	33.1			
Distance to Next Stack: Center to Center (m)	NA			

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)	22.1				
	Avg. (TPY)	6.7				
SO_2:	Max. (lb/hr)	87				
	Avg. (TPY)	.5				
NO_x:	Max (lb/hr)	291				
	Avg (TPY)	468				

POWER PLANT SUMMARY FORM

Code No. C6
Data Year 1976

PLANT NAME (Capacity): Hayden (465 MW)

OPERATING COMPANY: Colorado-Ute Electric Association

STATE: Colorado COUNTY: Routt CITY: Hayden

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 1028.9

Source: Seneca Mine, Peabody Coal Co.

	% S	% Ash	% Moisture	BTU/lb
Average:	.5	10.6	11.2	10616
Range:	.44-.54	9.1-11.9	10.1-12.5	10190-10853

Oil: Consumption (1000 bbls. per year): 15.42

Source: NP

	% S	BTU/Gal
Average:	.2	130,000
Range:	NP	NP

Gas: Consumption (10^6 Cubic feet Per Year):

	BTU/Cu Ft
Average:	NA
Range:	NA

POWER PLANT SUMMARY - PAGE 2

C6

Data Year 1974

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: Wet cooling towers

Cooling Intake Avg. CFS/source: 6.4/Yampa

Cooling Discharge avg. CFR/source: 0.5 / NP

OPERATING DATA:

Unit No.	1	2		
Name Plate Generating Capacity (MW):	163.2	275		
Date Unit on Line:	1965	1976		
Service Stack No.:	1	2		
Type of Firing:	PCFR DRY	PCTA DRY		
Boiler Manufacturer:	RILY	CE		
Operation (hr/yr):	8071	1780		
Fuel Consumption Actual: Coal (MTPY)	684.6	344.3		
Oil (MBPY)	3.792	11.6		
Gas (10^6 CFPY)	None	None		
100% feed (rate*/fuel)	91/C	126/C		
Emission Control Equipment:	ESP	HSESP		
Year Installed:	1974	1976		
Manufacturer:	BUELL	WHEE		
Efficiency: (Pollutant)	98.3 (TSP)	92 (TSP)		

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

C6

Date Year 1974

STACK PARAMETERS:

Stack No.	1	2		
Stack Height (m): (above ground elevation)	75	120		
Inside Diameter of Flue: at top (m):	6.7	7.3		
Flue Gas Rate (cfm X10^3): 100% Load	782.7	1121		
75% Load	587	740		
Exit Gas Temperature (^{o}F): 100% Load	285	292		
75% Load	280	255		
Exit Gas Velocity (FPS): 100% Load	34.3	41.3		
75% Load	25.7	27.3		
Distance to Next Stack: Center to Center (m)	76	-		

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)	312	2039		
	Avg. (TPY)	1048	2479		
SO_2:	Max. (lb/hr)	1187	2585		
	Avg. (TPY)	6503	3268		
NO_x:	Max (lb/hr)	1638	2268		
	Avg (TPY)	6161	3096		

POWER PLANT SUMMARY FORM

Code No. C7
Data Year 1976

PLANT NAME (Capacity): Nucla (34.5 MW)

OPERATING COMPANY: Colorado - Ute Electric Association

STATE: Colorado COUNTY: Montrose CITY: Nucla

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 90.3

Source: Southern Colorado, Peabody Coal Nucla Mine

	% S	% Ash	% Moisture	BTU/lb
Average:	.74	13.44	6.5	11598
Range:	.7-.91	12.2-14.2	5.6-10.39	10496-12,072

Oil: Consumption (1000 bbls. per year): None

Source: NA

	% S	BTU/Gal
Average:	NA	NA
Range:	NA	NA

Gas: Consumption (10^6 Cubic feet Per Year): None

	BTU/Cu Ft
Average:	NA
Range:	NA

POWER PLANT SUMMARY - PAGE 2

C7

Data Year 1976

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: NP

Cooling Intake Avg. CFS/source: 1.2 / San Miguel River

Cooling Discharge avg. CFR/source: 0.1 / San Miguel River

OPERATING DATA:

Unit No.	1	2	3	
Name Plate Generating Capacity (MW):	NP	NP	NP	
Date Unit on Line:	NP	NP	NP	
Service Stack No.:	NP	NP	NP	
Type of Firing:	NP	NP	NP	
Boiler Manufacturer:	NP	NP	NP	
Operation (hr/yr):	5477	5230	4874	
Fuel Consumption Actual: Coal (MTPY)	31.5	30.3	28.5	
Oil (MBPY)	none	none	none	
Gas (10^6 CFPY)	none	none	none	
100% feed (rate*/fuel)	NP	NP	NP	
Emission Control Equipment:	Baghouse	Baghouse	Baghouse	
Year Installed:	1974	1974	1973	
Manufacturer:	WHEE	WHEE	WHEE	
Efficiency: (Pollutant)	99.4 (TSP)	99.4 (TSP)	99.4 (TSP)	

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

C7

Date Year 1976

STACK PARAMETERS:

Stack No.	1	2	3	
Stack Height (m): (above ground elevation)	30.3	30.3	30.3	
Inside Diameter of Flue: at top (m):	1.7	1.7	1.7	
Flue Gas Rate (cfm X10^3): 100% Load	78300	78300	78300	
75% Load	58725	58,725	58,725	
Exit Gas Temperature (°F): 100% Load	350	350	350	
75% Load	340	340	340	
Exit Gas Velocity (FPS): 100% Load	54.9	54.9	54.9	
75% Load	41.2	41.2	41.2	
Distance to Next Stack: Center to Center (m)	18.2	16.1		

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)				
	Avg. (TPY)	22	21	19	
SO$_2$:	Max. (lb/hr)				
	Avg. (TPY)	442	426	400	
NO$_x$:	Max (lb/hr)				
	Avg (TPY)				

POWER PLANT SUMMARY FORM

Code No. C10
Data Year 1976

PLANT NAME (Capacity): Arapahoe (250.5 MW)

OPERATING COMPANY: Public Service Company of Colorado

STATE: Colorado COUNTY: Denver CITY: Denver 80223

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 661.9

Source: 498.9 X 10^3 t/gr Northern Colorado, 54.4 X 10^3 t/yr Southern Colorado, 156 X 10^3 t/yr Wyoming

	% S	% Ash	% Moisture	BTU/lb
Average:	.54	9.06	11.2	10490
Range:	.44-.67	7.12-10.51	Same	9991-10884

Oil: Consumption (1000 bbls. per year): None

Source: NA

	% S	BTU/Gal
Average:	NA	NA
Range:	NA	NA

Gas: Consumption (10^6 Cubic feet Per Year): 5371.1

	BTU/Cu Ft
Average:	993
Range:	985-1000

POWER PLANT SUMMARY - PAGE 2

C10

Data Year 1976

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: Wet Cooling Tower - Mechanical Draft

Cooling Intake Avg. CFS/source: 3.97 / ground water, Denver Municipal

Cooling Discharge avg. CFR/source: 0.60 / NP

OPERATING DATA:

Unit No.	1	2	3	4
Name Plate Generating Capacity (MW):	44	44	44	100
Date Unit on Line:	1950	1951	1951	1955
Service Stack No.:	1	1	2	2
Type of Firing:	NP	NP	NP	NP
Boiler Manufacturer:	B&W	B&W	B&W	B&W
Operation (hr/yr):	5017	8388	8404	8170
	69.6	76.9	82.4	80.4
Fuel Consumption Actual: Coal (MTPY)	22.1	156.4	175.9	307.5
Oil (MBPY)	None	None	None	None
Gas (10^6 CFPY)	1776	1290	575.2	1729
100% feed (rate*/fuel)	491/G	491/G	491/G	1200/G
	3085/C	3085/C	3085/C	6025/C
Emission Control Equipment:	MCTA&C	MCTA&C	MCTA&C	MCAX-C-WER
Year Installed:	1950-76	1951-1969	1951-1966	1955-1965-1973
Manufacturer:	UOP-BUEL	UOP	UOP	UOP
Efficiency: (Pollutant)	85-99.2(TSP)	85-95.7(TSP)	80 95.7(TSP)	80-87-98.2(TSP)

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

C10

POWER PLANT SUMMARY - PAGE 3

Date Year 1976

STACK PARAMETERS:

Stack No.	1	2		
Stack Height (m): (above ground elevation)	75.8	75.8		
Inside Diameter of Flue: at top (m):	3.9	3.9		
Flue Gas Rate (cfm X10^3): 100% Load	500	800		
75% Load	NP	NP		
Exit Gas Temperature (°F): 100% Load	315	320		
75% Load	NP	NP		
Exit Gas Velocity (FPS): 100% Load	62.8	86.6		
75% Load	NP	NP		
Distance to Next Stack: Center to Center (m)	58.2	NA		

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)	281	431		
	Avg. (TPY)	531	1008		
SO_2:	Max. (lb/hr)	1837	4978		
	Avg. (TPY)	1712	2528		
NO_x:	Max (lb/hr)	1110	1639		
	Avg (TPY)	1606	4350		

POWER PLANT SUMMARY FORM

Code No. C11

Data Year 1976

PLANT NAME (Capacity): Cameo (75 MW)

OPERATING COMPANY: Public Service Company of Colorado

STATE: Colorado COUNTY: Mesa CITY: Palisade

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 162.5

Source: Routt, Mesa and La Plata Counties, Colorado

	% S	% Ash	% Moisture	BTU/lb
Average:	.66	10.1	9.1	10825
Range:	.44-.88	8.03-11.47	Same	10541-11585

Oil: Consumption (1000 bbls. per year): .6267

Source: Fuel Resources Development Co., Sinclair, Wy.

	% S	BTU/Gal
Average:	.31	137,110
Range:	.28-.32	136729-137318

Gas: Consumption (10^6 Cubic feet Per Year): 2513.751

	BTU/Cu Ft
Average:	1007
Range:	995-1030

POWER PLANT SUMMARY - PAGE 2

C11

Data Year 1976

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: once through flow

Cooling Intake Avg. CFS/source: 68.27/Government Highline Canal

Cooling Discharge avg. CFR/source: 67.70/Government Highling Canal

OPERATING DATA:

Unit No.	1	2		
Name Plate Generating Capacity (MW):	22	44		
Date Unit on Line:	1957	1960		
Service Stack No.:	1	2		
Type of Firing:	PCFR	PCFR		
Boiler Manufacturer:	B&W	B&W		
Operation (hr/yr):	7947	8248		
Fuel Consumption Actual: Coal (MTPY)	.353	162.1		
Oil (MBPY)	.6238	.0029		
Gas (10^6 CFPY)	2096.519	417.2		
100% feed (rate*/fuel)	12.15/C 9.9/0 400/G	20.9/c 24.2/0 400/G		
Emission Control Equipment:	MCAX	MCAX+ESP		
Year Installed:	1957	1960-1965		
Manufacturer:	UOP	West-UOP		
Efficiency: (Pollutant)	75(TSP)	97.6 + flue gas conditioning system (TSP)		

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

C11

Date Year 1976

STACK PARAMETERS:

Stack No.	1	2		
Stack Height (m): (above ground elevation)	45	60		
Inside Diameter of Flue: at top (m):	2.3	2.7		
Flue Gas Rate (cfm X10^3): 100% Load	115	221.3		
75% Load	NP	NP		
Exit Gas Temperature (^{o}F): 100% Load	290	280		
75% Load	NP	NP		
Exit Gas Velocity (FPS): 100% Load	43.39	57.97		
75% Load	NP	NP		
Distance to Next Stack: Center to Center (m)	68.8	NA		

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)	600	110		
	Avg. (TPY)	7.6	334		
SO$_2$:	Max. (lb/hr)	900	2000		
	Avg. (TPY)	5	2032		
NO$_x$:	Max (lb/hr)	500	660		
	Avg (TPY)	766	1600		

POWER PLANT SUMMARY FORM

Code No. C12
Data Year 1974/1976

PLANT NAME (Capacity): Cherokee (801.3 MW)

OPERATING COMPANY: Public Service Company of Colorado

STATE: Colorado COUNTY: Adams CITY: Denver

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 1779

Source: Energy Mine, Routt County, Colorado; Belle Ayr Mine, Campbell County, Wyoming

	% S	% Ash	% Moisture	BTU/lb
Average:	.45	8.41	10.1	10645
Range:	.38-.49	6.46-11.42	10.1	10341-11,101

Oil: Consumption (1000 bbls. per year): NA

Source: NA

	% S	BTU/Gal
Average:	NA	NA
Range:	NA	NA

Gas: Consumption (10^6 Cubic feet Per Year): 5881

	BTU/Cu Ft
Average:	993
Range:	990-1000

POWER PLANT SUMMARY - PAGE 2

C12

Data Year 1974/1976

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: Wet cooling towers

Cooling Intake Avg. CFS/source: 28.4/Denver Municipal Ground water and Ditch water

Cooling Discharge avg. CFR/source: 14.7/NP

OPERATING DATA:

Unit No.	1	2	3	4
Name Plate Generating Capacity (MW):	100	110	150	350
Date Unit on Line:	1957	1959	1962	1968
Service Stack No.:	1	1	2	3
Type of Firing:	PCTF	PCTF	PCFR	PCTA
Boiler Manufacturer:	B&W	B&W	B&W	CE
Operation (hr/yr):	6642	7703	8194	6450
Fuel Consumption Actual: Coal (MTPY)	295	337	367	778
Oil (MBPY)	N A	NA	NA	NA
Gas (10^6 CFPY)	452	994	3839	594
100% feed (rate*/fuel)	61.35/C 1240/G	61.35/C 1240/G	62.4/C 404/G	151.1/C 3480/G
Emission Control Equipment:	MCTA, E, WETC	MCTA, E	MCTA, E, WETC	MCTA, E, WETC
Year Installed:	57,65,73	57,68	62,64,72	68,68,74
Manufacturer:	UOP, WEST UOP	UOP, COTT	WEST, WEST UOP	COTT, KOPP, UOP
Efficiency: (Pollutant)	99.3(TSP)	94.2(TSP)	99.0(TSP)	99.4(TSP)

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

C12

Date Year 1974/1976

STACK PARAMETERS:

Stack No.	1	2	3	
Stack Height (m): (above ground elevation)	91.4	91.4	121.9	
Inside Diameter of Flue: at top (m):	4.9	5.9	6.7	
Flue Gas Rate (cfm X10^3): 100% Load	970	545	1390	
75% Load	NP	NP	NP	
Exit Gas Temperature (^oF): 100% Load	290	272	267	
75% Load	NP	NP	NP	
Exit Gas Velocity (FPS): 100% Load	80.41	30.41	60.94	
75% Load	NP	NP	NP	
Distance to Next Stack: Center to Center (m)	7o.8	67.8	-	

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)	773	1211	176	
	Avg. (TPY)$^{(1)}$	1545	2623	334	
SO_2:	Max. (lb/hr)	2284	1162	2813	
	Avg. (TPY) $^{(2)}$	5265	3156	6690	
NO_x:	Max (lb/hr)	2952	1405	3763	
	Avg (TPY) $^{(3)}$	5907	4646	7092	

(1) Total reported = 860 TPY
(2) Total reported - 13,100 TPY
(3) Total reported - 14,700 TPY

POWER PLANT SUMMARY FORM

Code No. C13
Data Year 1976

PLANT NAME (Capacity): Comanche (765 MW)

OPERATING COMPANY: Public Service Company of Colorado

STATE: Colorado COUNTY: Pueblo CITY: Pueblo

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 2445

Source: 2661 X10^3 tons/yr, Wyoming

	% S	% Ash	% Moisture	BTU/lb
Average:	.41	5.44	30.1	8488
Range:	.37-.50	5.18-5.78	Same	8345-8629

Oil: Consumption (1000 bbls. per year): 18

Source: Sinclair, Wyoming 23.3 X10^3 bbls.

	% S	BTU/Gal
Average:	.36	138527
Range:	.3-.42	136736-140850

Gas: Consumption (10^6 Cubic feet Per Year): 7.9

	BTU/Cu Ft
Average:	981
Range:	970-1002

POWER PLANT SUMMARY - PAGE 2

C13

Data Year 1974

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: Wet Cooling Tower

Cooling Intake Avg. CFS/source: 13.81 / St. Charles River

Cooling Discharge avg. CFR/source: 2.26 / St. Charles River

OPERATING DATA:

Unit No.	1	2		
Name Plate Generating Capacity (MW):	382.5	382.5		
Date Unit on Line:	1973	NP		
Service Stack No.:	1	2		
Type of Firing:	PCTA	PCTA		
Boiler Manufacturer:	CE	CE		
Operation (hr/yr):	6454	8197		
Fuel Consumption Actual: Coal (MTPY)	971	1473		
Oil (MBPY)	7.5	11		
Gas (10^6 CFPY)	7.7	.2		
100% feed (rate*/fuel)	214/C	214/C		
Emission Control Equipment:	ESP	ESP		
Year Installed:	1973	NP		
Manufacturer:	COTT	COTT		
Efficiency: (Pollutant)	99.6 (TSP)	99.6 (TSP)		

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

C13

Date Year 1976

STACK PARAMETERS:

Stack No.	1	2		
Stack Height (m): (above ground elevation)	151	151		
Inside Diameter of Flue: at top (m):	NP	NP		
Flue Gas Rate (cfm X10^3): 100% Load	2522	2522		
75% Load	NP	NP		
Exit Gas Temperature (^{o}F): 100% Load	261	261		
75% Load	235	235		
Exit Gas Velocity (FPS): 100% Load	47	47		
75% Load	36	36		
Distance to Next Stack: Center to Center (m)	NP	NA		

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)	75.7	75.7		
	Avg. (TPY)	180	272		
SO_2:	Max. (lb/hr)	3252.8	3252.8		
	Avg. (TPY)	7564	11474		
NO_x:	Max (lb/hr)	3852	3852		
	Avg (TPY)	8740	13257		

POWER PLANT SUMMARY FORM

Code No. C 14
Data Year 1976

PLANT NAME (Capacity): Valmont (281 MW)

OPERATING COMPANY: Public Service Company of Colorado

STATE: Colorado COUNTY: Boulder CITY: Boulder 80302

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 300.306

Source: Energy Mine, Colorado; Rosebud Mine, Wyoming

	% S	% Ash	% Moisture	BTU/lb
Average:	.84	8.43	12.4	10669
Range:	.73-.93	7.94-8-91	same	10517-10930

Oil: Consumption (1000 bbls. per year): none

Source: NA

	% S	BTU/Gal
Average:	NA	NA
Range:	NA	NA

Gas: Consumption (10^6 Cubic feet Per Year): 8423

	BTU/Cu Ft
Average:	1007
Range:	996-1015

POWER PLANT SUMMARY - PAGE 2

C14

Data Year 1976

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: Cooling Pond

Cooling Intake Avg. CFS/source: 3/68/Valmont, Hillcrest & Legget Lakes

Cooling Discharge avg. CFR/source: 1.73/Cooling pond

OPERATING DATA:

Unit No.	11, 12, 13, 14	21, 22	23	24
Name Plate Generating Capacity (MW):				
Date Unit on Line:	1924	1941	1937	1931
Service Stack No.:	1	2	2	1
Type of Firing:	PCOP	PCOP	PCOP	PCOP
Boiler Manufacturer:	B&W	B&W	B&W	B&W
Operation (hr/yr):	2690	2690	2690	2690
Fuel Consumption Actual: Coal (MTPY)	None	NP	NP	NP
Oil (MBPY)	None	NP	NP	NP
Gas (10^6 CFPY)	1768	NP	NP	NP
100% feed (rate*/fuel)	3.5/C	13.2/C	9.8/C	9.8/C
Emission Control Equipment:	None	None	None	None
Year Installed:	NA	NA	NA	NA
Manufacturer:	NA	NA	NA	NA
Efficiency: (Pollutant)	NA	NA	NA	NA

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 2 (Continued)

C14

Data Year 1976

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism:

Cooling Intake Avg. CFS/source:

Cooling Discharge avg. CFR/source:

OPERATING DATA:

Unit No.	5			
Name Plate Generating Capacity (MW):				
Date Unit on Line:	1969			
Service Stack No.:	5			
Type of Firing:	dry PCTA			
Boiler Manufacturer:	CE			
Operation (hr/yr):	8125			
Fuel Consumption Actual: Coal (MTPY)	300.3			
Oil (MBPY)	None			
Gas (10^6 CFPY)	6654			
100% feed (rate*/fuel)	94.25			
Emission Control Equipment:	**MCAX, E, WETC & PSC			
Year Installed:	'64, '64, '74, '71			
Manufacturer:	COTT, COTT, PSC, UOP			
Efficiency: (Pollutant)	99.3 TSP/90SO_2			

*Rates: Coal in Tons/nr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

C14

Date Year 1976

STACK PARAMETERS:

Stack No.	1	2	3	
Stack Height (m): (above ground elevation)	117	101	78	
Inside Diameter of Flue: at top (m):	5	6.7	5.2	
Flue Gas Rate (cfm X10^3): 100% Load	.365	.590	.746	
75% Load	NP	NP	NP	
Exit Gas Temperature (°F): 100% Load	450	450	271	
75% Load	NP	NP	NP	
Exit Gas Velocity (FPS): 100% Load	41	25.4	54.8	
75% Load	NP	NP	NP	
Distance to Next Stack: Center to Center (m)	1-2 53.3	2-3 50.3		

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)			100	
	Avg. (TPY)	8.8		151	
SO_2:	Max. (lb/hr)			333	
	Avg. (TPY)	.5		481	
NO_x:	Max (lb/hr)			1936	
	Avg (TPY)	618		3701	

POWER PLANT SUMMARY FORM

Code No. C15
Data Year 1974/1976

PLANT NAME (Capacity): Zuni (115.25 MW)

OPERATING COMPANY: Public Service Company of Colorado

STATE: Colorado COUNTY: Denver CITY: Denver

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): NA

Source: NA

	% S	% Ash	% Moisture	BTU/lb
Average:	NA	NA	NA	NA
Range:	NA	NA	NA	NA

Oil: Consumption (1000 bbls. per year): 500.514

Source: 217.4 Sinclair, Wyo, Ref. Corp. Denv, 84.4, Asamera Denv. 40.0 Cont. Oil Denv. 84.9, Milt Adams (Reclaimed) 1.4 Denver

	% S	BTU/Gal
Average:	.94	147,509
Range:	.73-1.13	147,370-149,096

Gas: Consumption (10^6 Cubic feet Per Year): 7378

	BTU/Cu Ft
Average:	993
Range:	985-1000

POWER PLANT SUMMARY - PAGE 2

C15

Data Year 1974/1976

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: once through flow UNITS 1&3, wet tower unit 2

Cooling Intake Avg. CFS/source: 61.54 / South Platte R. and Denver Municipal Supply

Cooling Discharge avg. CFR/source: 60.25/South Platt R.

OPERATING DATA:

Unit No.	1	2	3	
Name Plate Generating Capacity (MW):	35	14	66	
Date Unit on Line:	1948	1948	1954	
Service Stack No.:	1	2	3	
Type of Firing:	ODF	GFRO	ODF	
Boiler Manufacturer:	B&W	B&W	B&W	
Operation (hr/yr):	7757	7757	8784	
Fuel Consumption Actual:				
Coal (MTPY)	NA	NA	NA	
Oil (MBPY)	207(1+2)		293	
Gas (10^6 CFPY)	2999(1+2)		4411	
100% feed (rate*/fuel)	29.3/0	NA	45.9/0	
	470/G	237/G	870/G	
Emission Control Equipment:	MCTA	none	ESP	
Year Installed:	1948	NA	1962	
Manufacturer:	UOP	NA	BUEL	
Efficiency: (Pollutant)	75 (TSP)	NA	81.3(TSP)	

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

C15

Date Year 1974/1976

STACK PARAMETERS:

Stack No.	1	2	3	
Stack Height (m): (above ground elevation)	88.5	13.6	75.8	
Inside Diameter of Flue: at top (m):	3.6	1.8	3.3	
Flue Gas Rate (cfm X10^3): 100% Load	186.5	71.8	297.0	
75% Load	NP	NP	NP	
Exit Gas Temperature (^oF): 100% Load	430	450	340	
75% Load	NP	NP	NP	
Exit Gas Velocity (FPS): 100% Load	34.63	42.33	52.07	
75% Load	NP	NP	NP	
Distance to Next Stack: Center to Center (m)	(1+2) 34.5	(2-3) 67.4	-	

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)	7.2 (1+2)		4.4	
	Avg. (TPY)	22.2 (1+2)		13.3	(Tot. rep. 17)
SO_2:	Max. (lb/hr)	218 (1+2)		342	
	Avg. (TPY)	642 (1+2)		910	(Tot. rep.1,623)
NO_x:	Max (lb/hr)	458 (1+2)		811	
	Avg (TPY)	1505 (1+2)		2198	(Tot. rep.2,540)

POWER PLANT SUMMARY FORM

Code No. C16
Data Year 1976

PLANT NAME (Capacity): W. N. Clark (38.5 MW)

OPERATING COMPANY: S. Colorado Power Division Central Telephone & Utilities Corp

STATE: Colorado COUNTY: Fremont CITY: Pueblo

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 110.8

Source: Southern Colorado

	% S	% Ash	% Moisture	BTU/lb
Average:	.7	24	10(est.)	10149
Range:	same	same	same	9885-10332

Oil: Consumption (1000 bbls. per year): None

Source: NA

	% S	BTU/Gal
Average:	NA	NA
Range:	NA	NA

Gas: Consumption (10^6 Cubic feet Per Year): 1585.2

	BTU/Cu Ft
Average:	981
Range:	961-1002

POWER PLANT SUMMARY - PAGE 2

C16

Data Year 1976

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: Once through cooling - WCT Available

Cooling Intake Avg. CFS/source: 60/Arkansas River

Cooling Discharge avg. CFR/source: 59/Arkansas River

OPERATING DATA:

Unit No.	1	2		
Name Plate Generating Capacity (MW):	16.5	22.0		
Date Unit on Line:	1955	1959		
Service Stack No.:	1	2		
Type of Firing:	SPRE/GFRO	SPRE/GFRO		
Boiler Manufacturer:	B&W	B&W		
Operation (hr/yr):	8429	8395		
Fuel Consumption Actual:				
Coal (MTPY)	39.3	71.5		
Oil (MBPY)	None	None		
Gas (10^6 CFPY)	879.8	705.4		
100% feed (rate*/fuel)	10/C	12/C		
	210/G	264/G		
Emission Control Equipment:	MCAX	MCAX		
Year Installed:	1955	1959		
Manufacturer:	WEST	COTT		
Efficiency: (Pollutant)	93 (TSP)	93 (TSP)		

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

C16

Date Year 1976

STACK PARAMETERS:

Stack No.	1	2		
Stack Height (m): (above ground elevation)	45.5	45.5		
Inside Diameter of Flue: at top (m):	2.3	2.3		
Flue Gas Rate (cfm $X10^3$): 100% Load	123	172		
75% Load	101	138		
Exit Gas Temperature (°F): 100% Load	425	325		
75% Load	400	400		
Exit Gas Velocity (FPS): 100% Load	46.3	65		
75% Load	38	52		
Distance to Next Stack: Center to Center (m)	64.2	-		

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)		269	322		
	Avg. (TPY)		528	960		
SO_2:	Max. (lb/hr)		266	319		
	Avg. (TPY)		522	950		
NO_x:	Max (lb/hr)	coal/gas	150/147	180/184		
	Avg (TPY)	coal/gas	215/327	436/256		

POWER PLANT SUMMARY FORM

Code No. C17
Data Year 1974/1976

PLANT NAME (Capacity): Pueblo (30 MW)

OPERATING COMPANY: Southern Colorado Power Division - Centrat Telephone & Utilities Corp.

STATE: Colorado COUNTY: Pueblo CITY: Pueblo

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): NA

Source: NA

	% S	% Ash	% Moisture	BTU/lb
Average:	NA	NA	NA	NA
Range:	NA	NA	NA	NA

Oil: Consumption (1000 bbls. per year): 3.3

Source: Acorn Petroleum Co., Pueblo

	% S	BTU/Gal
Average:	.3	142,000
Range:	Same	Same

Gas: Consumption (10^6 Cubic feet Per Year): 2178.2

	BTU/Cu Ft
Average:	847
Range:	839-854

POWER PLANT SUMMARY - PAGE 2

C17

Data Year 1974/1976

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: once through

Cooling Intake Avg. CFS/source: 45 / Arkansas River

Cooling Discharge avg. CFR/source: 45 / Arkansas River

OPERATING DATA:

Unit No.	6	5	1, 2, 3	
Name Plate Generating Capacity (MW):	15	7.5	7.5(each)	
Date Unit on Line:	49	41	22	
Service Stack No.:	2	1	1	
Type of Firing:	GFRD PCFR	GOPP OSTO	GOPP OSTO	
Boiler Manufacturer:	OTHE B&W	OTHE VOGT	OTHE OTHE	
Operation (hr/yr):	8641	970	0	
Fuel Consumption Actual: Coal (MTPY)	NA	NA	0	
Oil (MBPY)	3.1	.2	0	
Gas (10^6 CFPY)	2034	143	0	
100% feed (rate*/fuel)	290.4/G	120/G	75(each)/G	
Emission Control Equipment:	MCTA	GRAV	GRAV	
Year Installed:	49	41	22	
Manufacturer:	BUEL	OTHE	OTHE	
Efficiency: (Pollutant)	93(TSP)	93(TSP)	NP(TSP)	

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

C17

Date Year 1974/1976

STACK PARAMETERS:

Stack No.	2	1		
Stack Height (m): (above ground elevation)	45.7	82.3		
Inside Diameter of Flue: at top (m):	2.7	4.6		
Flue Gas Rate (cfm X10^3): 100% Load	137	70		
75% Load	103	52.6		
Exit Gas Temperature (^{o}F): 100% Load	300	397		
75% Load	NP	NP		
Exit Gas Velocity (FPS): 100% Load	35.8	6.6		
75% Load	26.8	5.0		
Distance to Next Stack: Center to Center (m)	61	-		

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)					
	Avg. (TPY)	1	neg.			
SO_2:	Max. (lb/hr)					
	Avg. (TPY)	3.5	.3			
NO_x:	Max (lb/hr)					
	Avg (TPY)					

POWER PLANT SUMMARY FORM

Code No. C22
Data Year EIS

PLANT NAME (Capacity): Craig (821.8 2 units)

OPERATING COMPANY: Colorado Ute Electric Assoc., Inc.

STATE: Colorado COUNTY: Moffat CITY: Craig

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 5,600 (4 Units)

Source: Adjacent Coal Mine Colorado

	% S	% Ash	% Moisture	BTU/lb
Average:	.36	8.81	16.68	9614
Range:	.24 -.65	5.64-22.61	15.69-13.73	8176-10294

Oil: Consumption (1000 bbls. per year):

Source:

	% S	BTU/Gal
Average:		
Range:		

Gas: Consumption (10^6 Cubic feet Per Year):

	BTU/Cu Ft
Average:	
Range:	

POWER PLANT SUMMARY - PAGE 2

C22

Data Year EIS

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: Wet Cooling Towers

Cooling Intake Avg. CFS/source: Yampa River

Cooling Discharge avg. CFR/source:

OPERATING DATA:

Unit No.	1	2	3	4
Name Plate Generating Capacity (MW):	380	380	380	380
Date Unit on Line:	78	79	81	82
Service Stack No.:	1	2	3	4
Type of Firing:				
Boiler Manufacturer:				
Operation (hr/yr):				
Fuel Consumption Actual: Coal (MTPY)	1.4	1.4	1.4	1.4
Oil (MBPY)				
Gas (10^6 CFPY)				
100% feed (rate*/fuel)	215	215	215	215
Emission Control Equipment:	HSESP/ Scrubber	HSESP/ Scrubber	HSESP/ Scrubber	HSESP/ Scrubber
Year Installed:				
Manufacturer:				
Efficiency: (Pollutant)	99+/50	99+/50	99+/50	99+/50

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

C22

Date Year EIS

STACK PARAMETERS:

Stack No.	1	2	3	4
Stack Height (m): (above ground elevation)	181	181	181	181
Inside Diameter of Flue: at top (m):	5.5	5.5	5.5	5.5
Flue Gas Rate (cfm X10^3): 100% Load				
75% Load				
Exit Gas Temperature (°F): 100% Load	150	150	150	150
75% Load				
Exit Gas Velocity (FPS): 100% Load				
75% Load				
Distance to Next Stack: Center to Center (m)				

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)				
	Avg. (TPY)				
SO_2:	Max. (lb/hr)	2941	2941	2941	2941
	Avg. (TPY)	9264	9264	9264	9264
NO_x:	Max (lb/hr)				
	Avg (TPY)				

POWER PLANT SUMMARY FORM

Code No. M2
Data Year 1976

PLANT NAME (Capacity): Lewis and Clark (50 MWs)

OPERATING COMPANY: Montana - Dakota Utilities Co.

STATE: Montana COUNTY: Richland CITY: Sidney

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 313.1

Source: Knife River Coal Mining Co., Savage Mine

	% S	% Ash	% Moisture	BTU/lb
Average:	0.5	8.4	37.5	6471
Range:	0.5-0.6	6.9-9.9	36.6-39.1	6330-6565

Oil: Consumption (1000 bbls. per year): None

Source: NA

	% S	BTU/Gal
Average:	NA	NA
Range:	NA	NA

Gas: Consumption (10^6 Cubic feet Per Year): 19.1

	BTU/Cu Ft
Average:	982
Range:	953-1018

POWER PLANT SUMMARY - PAGE 2

M2

Data Year 1976

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: once-through flow

Cooling Intake Avg. CFS/source: 40.0 / Yellowstone River

Cooling Discharge avg. CFR/source: 39.9 / Yellowstone River

OPERATING DATA:

Unit No.	1			
Name Plate Generating Capacity (MW):	50			
Date Unit on Line:	58			
Service Stack No.:	1&2			
Type of Firing:	PCTA			
Boiler Manufacturer:	CE			
Operation (hr/yr):	8074			
Fuel Consumption Actual: Coal (MTPY)	313.1			
Oil (MBPY)	None			
Gas (10^6 CFPY)	19.1			
100% feed (rate*/fuel)	49/c			
Emission Control Equipment:	MCAX/VENT			
Year Installed:	58/NP			
Manufacturer:	WEST/NP			
Efficiency: (Pollutant)	85.7/98.7 (TSP)			

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

M2
Date Year 1976

STACK PARAMETERS:

Stack No.	1			
Stack Height (m): (above ground elevation)	61			
Inside Diameter of Flue: at top (m):	2.1			
Flue Gas Rate (cfm X10^3): 100% Load	243			
75% Load	180			
Exit Gas Temperature (°F): 100% Load	380			
75% Load	350			
Exit Gas Velocity (FPS): 100% Load	103			
75% Load	76			
Distance to Next Stack: Center to Center (m)	NP			

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)	43.3		
	Avg. (TPY)	119.7 (reported 300)		
SO_2:	Max. (lb/hr)	882.3		
	Avg. (TPY)	2348.3 (reported 3200)		
NO_x:	Max (lb/hr)	1044.4		
	Avg (TPY)	2198.4 (reported 2,800)		

POWER PLANT SUMMARY FORM

Code No. M3
Data Year 1974

PLANT NAME (Capacity): Frank Bird (69 MW'S)

OPERATING COMPANY: Montana Power Company

STATE: Montana COUNTY: Yellowstone CITY: Billings

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): None

Source: NA

	% S	% Ash	% Moisture	BTU/lb
Average:	NA	NA	NA	NA
Range:	NA	NA	NA	NA

Oil: Consumption (1000 bbls. per year): 12.0

Source: Continental Oil Co., Billings, Mt.

	% S	BTU/Gal
Average:	1074	145,976
Range:	Same	145,862- 146,300

Gas: Consumption (10^6 Cubic feet Per Year): 77

	BTU/Cu Ft
Average:	1182
Range:	1162-1186

POWER PLANT SUMMARY - PAGE 2

M3

Data Year 1974

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: once-through flow

Cooling Intake Avg. CFS/source: 55 est. / Yellowstone River

Cooling Discharge avg. CFR/source: 55 est. / Yellowstone River

OPERATING DATA:

Unit No.	1			
Name Plate Generating Capacity (MW):	69			
Date Unit on Line:	51			
Service Stack No.:	1			
Type of Firing:	RFRO/GFRO			
Boiler Manufacturer:	FW			
Operation (hr/yr):	388			
Fuel Consumption Actual:				
Coal (MTPY)	None			
Oil (MBPY)	12			
Gas (10^6 CFPY)	77			
100% feed (rate*/fuel)	138/O 755/G			
Emission Control Equipment:	None			
Year Installed:	NA			
Manufacturer:	NA			
Efficiency: (Pollutant)	NA			

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

M3

Date Year 1974

STACK PARAMETERS:

Stack No.	1			
Stack Height (m): (above ground elevation)	45.7			
Inside Diameter of Flue: at top (m):	3.4			
Flue Gas Rate (cfm X10^3): 100% Load	190.6			
75% Load	148.7			
Exit Gas Temperature (^oF): 100% Load	357			
75% Load	340			
Exit Gas Velocity (FPS): 100% Load	25.22			
75% Load	19.67			
Distance to Next Stack: Center to Center (m)	NA			

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)	53.9			
	Avg. (TPY)	2.4 (reported none)			
SO_2:	Max. (lb/hr)	910.4			
	Avg. (TPY)	68.9 (reported 70 .)			
NO_x:	Max (lb/hr)	1137.1			
	Avg (TPY)	53.4 (reported 41)			

POWER PLANT SUMMARY FORM

Code No. M5
Data Year 1974

PLANT NAME (Capacity): J. E. Corette (172.8 MW's)
OPERATING COMPANY: Montana Power Company
STATE: Montana COUNTY: Yellowstone CITY: Billings

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 526
Source: Colstrip Montana

	% S	% Ash	% Moisture	BTU/lb
Average:	0.85	8.7	23.9	8662
Range:	0.63-1.29	7.6-9.2	14.7-26.3	8357-9742

Oil: Consumption (1000 bbls. per year): None
Source: NA

	% S	BTU/Gal
Average:	NA	NA
Range:	NA	NA

Gas: Consumption (10^6 Cubic feet Per Year): 425

	BTU/Cu Ft
Average:	1182
Range:	1162-1186

POWER PLANT SUMMARY - PAGE 2

M5

Data Year 1974

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: once-through flow

Cooling Intake Avg. CFS/source: 90 est. / Yellowstone River

Cooling Discharge avg. CFR/source: 90 est. / Yellowstone River

OPERATING DATA:

Unit No.	1			
Name Plate Generating Capacity (MW):	172.8			
Date Unit on Line:	68			
Service Stack No.:	1			
Type of Firing:	PCTA			
Boiler Manufacturer:	CE			
Operation (hr/yr):	7776			
Fuel Consumption Actual:				
Coal (MTPY)	526			
Oil (MBPY)	NONE			
Gas (10^6 CFPY)	425			
100% feed (rate*/fuel)	91/c			
Emission Control Equipment:	E			
Year Installed:	68			
Manufacturer:	COTT			
Efficiency: (Pollutant)	96(TSP)			

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

M5
Date Year 1974

STACK PARAMETERS:

Stack No.	1			
Stack Height (m): (above ground elevation)	106.7			
Inside Diameter of Flue: at top (m):	3.5			
Flue Gas Rate (cfm X10^3): 100% Load	565			
75% Load	441			
Exit Gas Temperature (^{O}F): 100% Load	285			
75% Load	265			
Exit Gas Velocity (FPS): 100% Load	90.5			
75% Load	70.5			
Distance to Next Stack: Center to Center (m)	NA			

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)	569.3			
	Avg. (TPY)	1555.9 (reported 1460)			
SO_2:	Max. (lb/hr)	4460.8			
	Avg. (TPY)	4895.0 (reported 8420)			
NO_x:	Max (lb/hr)	1638			
	Avg (TPY)	4882.7 (reported 4,730)			

POWER PLANT SUMMARY FORM

Code No. ND 1
Data Year 1974

PLANT NAME (Capacity): Leland Olds #1 (216 MW)

OPERATING COMPANY: Basin Electric Power Cooperative, Inc.

STATE: North Dakota COUNTY: Mercer CITY: Stanton

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 1,320.621

Source: Consolidated Coal Co. - Stanton, N.D.

	% S	% Ash	% Moisture	BTU/lb
Average:	0.59	13.16	37.16	6,572
Range:	same	11.43 - 15.76	35.87-38.39	6406-6796

Oil: Consumption (1000 bbls. per year): 2.4 (Boiler Ignition)

Source: NP

	% S	BTU/Gal
Average:	NP	140,000
Range:	NP	same

Gas: Consumption (10^6 Cubic feet Per Year): none

	BTU/Cu Ft
Average:	NA
Range:	NA

POWER PLANT SUMMARY - PAGE 2

ND1

Data Year 1974

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: Once-through flow

Cooling Intake Avg. CFS/source: 162.64/Missouri River

Cooling Discharge avg. CFR/source: 162.59/Missouri River

OPERATING DATA:

Unit No.	1			
Name Plate Generating Capacity (MW):	246			
Date Unit on Line:	1966			
Service Stack No.:	1			
Type of Firing:	PCOP			
Boiler Manufacturer:	B&W			
Operation (hr/yr):	7875.2			
Fuel Consumption Actual: Coal (MTPY)	1,320.7			
Oil (MBPY)	2.4			
Gas (10^6 CFPY)	None			
100% feed (rate*/fuel)	175/C			
Emission Control Equipment:	MCTA/E			
Year Installed:	66/74			
Manufacturer:	COTT/COTT			
Efficiency: (Pollutant)	85.5(TSP)/99.5(TSP)			

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

ND1
Date Year 1974

STACK PARAMETERS:

Stack No.	1			
Stack Height (m): (above ground elevation)	106.7			
Inside Diameter of Flue: at top (m):	6.7			
Flue Gas Rate (cfm X10^3): 100% Load	897.0			
75% Load	696.5			
Exit Gas Temperature (^oF): 100% Load	385			
75% Load	370			
Exit Gas Velocity (FPS): 100% Load	67.3			
75% Load	48.3			
Distance to Next Stack: Center to Center (m)	N/A			

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)	96.5			
	Avg. (TPY)	308.2(reported 1,500)			
SO_2:	Max. (lb/hr)	3097.5			
	Avg. (TPY)	11,687.5(reported 15,000)			
NO_x:	Max (lb/hr)	2450			
	Avg (TPY)	9244.3(reported 11,500-8,000)			

POWER PLANT SUMMARY FORM

Code No. ND 2
Data Year 1974

PLANT NAME (Capacity): Wm. J. Neal (36 MW)

OPERATING COMPANY: Basin Electric Power Cooperative, Inc.

STATE: North Dakota COUNTY: McHenry CITY: Velva

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 315.1

Source: Consolidation Coal Co., Ward County, N.D.-Velva Mine

	% S	% Ash	% Moisture	BTU/lb
Average:	0.29	5.6	38.72	6,574
Range:	same	5.0-6.5	36.68-40.97	6,374-6,839

Oil: Consumption (1000 bbls. per year): 16.7

Source: Farmers Union, Minut, N.D.

	% S	BTU/Gal
Average:	NA	142,000
Range:	NA	Same

Gas: Consumption (10^6 Cubic feet Per Year): none

	BTU/Cu Ft
Average:	NA
Range:	NA

POWER PLANT SUMMARY - PAGE 2

ND2

Data Year 1974

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: Wet Cooling Towers

Cooling Intake Avg. CFS/source: 1/deep wells

Cooling Discharge avg. CFR/source: 0

OPERATING DATA:

Unit No.	1	2		
Name Plate Generating Capacity (MW):	17.25	17.25		
Date Unit on Line:	52	52		
Service Stack No.:	1	2		
Type of Firing:	PCFR	PCFR		
Boiler Manufacturer:	CE	CE		
Operation (hr/yr):	8199.4	8199.4		
Fuel Consumption Actual: Coal (MTPY)	315.1	(combined)		
Oil (MBPY)	none	none		
Gas (10^6 CFPY)	none	none		
100% feed (rate*/fuel)	25/c	25/c		
Emission Control Equipment:	MCAX	MCAX		
Year Installed:	52	52		
Manufacturer:	West	West		
Efficiency: (Pollutant)	80.4(TSP)	84 (TSP)		

*Rates: Coal in Tons/nr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

ND2
Date Year 1974

STACK PARAMETERS:

Stack No.	1	2		
Stack Height (m): (above ground elevation)	42.4	42.4		
Inside Diameter of Flue: at top (m):	1.8	1.8		
Flue Gas Rate (cfm X10^3): 100% Load	114.85	111.30		
75% Load	N/A	N/A		
Exit Gas Temperature (^oF): 100% Load	407	405		
75% Load	N/A	N/A		
Exit Gas Velocity (FPS): 100% Load	65	63		
75% Load	N/A	N/A		
Distance to Next Stack: Center to Center (m)	11.9	11.9		

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)	404.9	combined		
	Avg. (TPY)	1099.8 (reported 3460)	combined		
SO_2:	Max. (lb/hr)	435	combined		
	Avg. (TPY)	1370.7 (reported 2110)	combined		
NO_x:	Max (lb/hr)	700 combined			
	Avg (TPY)	2,205.7 (reported 1,925)	combined		

POWER PLANT SUMMARY FORM

Code No. ND4
Data Year 1976

PLANT NAME (Capacity): R.M. Heskett (100 MW)

OPERATING COMPANY: Montana-Dakota Utilities Co.

STATE: North Dakota COUNTY: Morton CITY: Mandan

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 535.2

Source: Knife River Coal Mining Co's. South Beulah Mine, Mercer and Oliver Counties.

	% S	% Ash	% Moisture	BTU/lb
Average:	0.8	7.2	35.4	6995
Range:	0.7-0.9	6.3-8.8	33.8-37.1	6770-7185

Oil: Consumption (1000 bbls. per year): None

Source: NA

	% S	BTU/Gal
Average:	NA	NA
Range:	NA	NA

Gas: Consumption (10^6 Cubic feet Per Year): None

	BTU/Cu Ft
Average:	NA
Range:	NA

POWER PLANT SUMMARY - PAGE 2

ND4
Data Year 1976

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: Once-Through flow

Cooling Intake Avg. CFS/source: 57.5/Missouri River

Cooling Discharge avg. CFR/source: 57.4/Missouri River

OPERATING DATA:

Unit No.	1	2		
Name Plate Generating Capacity (MW):	25	75		
Date Unit on Line:	1954	1963		
Service Stack No.:	1	2		
Type of Firing:	SPRE	SPRE		
Boiler Manufacturer:	RILY	RILY		
Operation (hr/yr):	7433.3	7667.5		
Fuel Consumption Actual: Coal (MTPY)	159.2	376.0		
Oil (MBPY)	None	None		
Gas (10^6 CFPY)	None	None		
100% feed (rate*/fuel)	27.9/C	60.2/C		
Emission Control Equipment:	E	MCAX/C		
Year Installed:	75	63/75		
Manufacturer:	COTT	WEST/COTT		
Efficiency: (Pollutant)	99.0(TSP)	88/97.0(TSP)		

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

ND4
Date Year 1976

STACK PARAMETERS:

Stack No.	1	2		
Stack Height (m): (above ground elevation)	91.4	91.4		
Inside Diameter of Flue: at top (m):	2.2	3.6		
Flue Gas Rate (cfm X10^3): 100% Load	165.0	433.2		
75% Load	112.6	304.7		
Exit Gas Temperature (^oF): 100% Load	441	340		
75% Load	394	317		
Exit Gas Velocity (FPS): 100% Load	66.6	63.8		
75% Load	45.5	44.9		
Distance to Next Stack: Center to Center (m)	109.1	109.1		

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)	17.2	111.2		
	Avg. (TPY)	40.1	284.2 (reported Total 100)		
SO_2:	Max. (lb/hr)	753.3	1625.4		
	Avg. (TPY)	1910.4	4512 (reported Total 8000)		
NO_x:	Max (lb/hr)	167.4	361.2	(reported total 4800)	
	Avg (TPY)	477.6	1128		

POWER PLANT SUMMARY FORM

Code No. ND8
Data Year 1976

PLANT NAME (Capacity): Milton R. Young #1 (256.5 MW)
OPERATING COMPANY: Minnkota Power Cooperative, Inc.
STATE: North Dakota COUNTY: Oliver CITY: Center

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 1580.835
Source: Center Mine, Center, North Dakota (Bankot Noonan)

	% S	% Ash	% Moisture	BTU/lb
Average:	0.52	8.21	36.62	6395.33
Range:	0.40-0.78	5.13-12.34	35.26-37.54	6054-6777

Oil: Consumption (1000 bbls. per year): 16.665
Source: Standard Oil Company

	% S	BTU/Gal
Average:	0.3	140,000
Range:	same	same

Gas: Consumption (10^6 Cubic feet Per Year): None

	BTU/Cu Ft
Average:	NA
Range:	NA

POWER PLANT SUMMARY - PAGE 2

ND8

Data Year 1976

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: Cooling Pond

Cooling Intake Avg. CFS/source: 263 / cooling pond (Square Butte Cr.)

Cooling Discharge avg. CFR/source: 259.68 / cooling pond

OPERATING DATA:

Unit No.	1			
Name Plate Generating Capacity (MW):	256.6			
Date Unit on Line:	1970			
Service Stack No.:	1			
Type of Firing:	cycl			
Boiler Manufacturer:	B&W			
Operation (hr/yr):	8188			
Fuel Consumption Actual: Coal (MTPY)	1580.835			
Oil (MBPY)	16.665			
Gas (10^6 CFPY)	None			
100% feed (rate*/fuel)	1820/C			
Emission Control Equipment:	MCAX/E			
Year Installed:	1970/-			
Manufacturer:	COTT/-			
Efficiency: (Pollutant)	65/99.6(TSP)			

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

ND8
Date Year 1976

STACK PARAMETERS:

Stack No.	1			
Stack Height (m): (above ground elevation)	91.4			
Inside Diameter of Flue: at top (m):	5.8			
Flue Gas Rate (cfm X10^3): 100% Load	1,040			
75% Load	990			
Exit Gas Temperature (^oF): 100% Load	325			
75% Load	350			
Exit Gas Velocity (FPS): 100% Load	60			
75% Load	45			
Distance to Next Stack: Center to Center (m)	NA			

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)	134.7			
	Avg. (TPY)	389.7(reported value 395)			
SO_2:	Max. (lb/hr)	4261.8			
	Avg. (TPY)	12,346.9(reported value 16,441)			
NO_x:	Max (lb/hr)	3100.7			
	Avg (TPY)	13,473.8(reported value 6345)			

POWER PLANT SUMMARY FORM

Code No. ND9
Data Year 1976

PLANT NAME (Capacity): Stanton (172 MW)

OPERATING COMPANY: United Power Association

STATE: North Dakota COUNTY: Mercer CITY: Stanton

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 741.7

Source: Indianhead Mine

	% S	% Ash	% Moisture	BTU/lb
Average:	0.71	9.47	33.5	6,877
Range:	0.60-0.81	8.66-10.51	31.6-36.0	6,668-7,030

Oil: Consumption (1000 bbls. per year): 13.7

Source: Standard Oil Company, Mandan, North Dakota

	% S	BTU/Gal
Average:	0.5	137,550
Range:	same	same

Gas: Consumption (10^6 Cubic feet Per Year): None

	BTU/Cu Ft
Average:	NA
Range:	NA

POWER PLANT SUMMARY - PAGE 2

ND9

Data Year 1976

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: Once through flow

Cooling Intake Avg. CFS/source: 223/ Missouri River

Cooling Discharge avg. CFR/source: 223 /Missouri River

OPERATING DATA:

Unit No.	1			
Name Plate Generating Capacity (MW):	172			
Date Unit on Line:	66			
Service Stack No.:	1			
Type of Firing:	PCFR			
Boiler Manufacturer:	FW			
Operation (hr/yr):	7,271.5			
Fuel Consumption Actual: Coal (MTPY)	741.7			
Oil (MBPY)	13.7			
Gas (10^6 CFPY)	0			
100% feed (rate*/fuel)	123/C			
Emission Control Equipment:	MCTA/E			
Year Installed:	66/76			
Manufacturer:	COTT/COTT			
Efficiency: (Pollutant)	61.8/98.6(TSP)			

*Rates: Coal in Tons/nr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

ND9

Date Year 1976

STACK PARAMETERS:

Stack No.	1			
Stack Height (m): (above ground elevation)	77.7			
Inside Diameter of Flue: at top (m):	4.6			
Flue Gas Rate (cfm X10^3): 100% Load	993.0			
75% Load	775.0			
Exit Gas Temperature (^{o}F): 100% Load	338			
75% Load	325			
Exit Gas Velocity (FPS): 100% Load	90			
75% Load	68			
Distance to Next Stack: Center to Center (m)	NA			

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)	126.7			
	Avg. (TPY)	344.2(reported value 5,000)			
SO$_2$:	Max. (lb/hr)	2988.9			
	Avg. (TPY)	7921.7(reported value 10,000)			
NO$_x$:	Max (lb/hr)	1722			
	Avg (TPY)	5222.1(reported value 5,000)			

POWER PLANT SUMMARY FORM

Code No. ND11
Data Year 1976

PLANT NAME (Capacity): Coal Creek (1100 MW two units)

OPERATING COMPANY: Cooperative Power Association

STATE: North Dakota COUNTY: McLean CITY: Underwood

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 5,700 (projected)

Source: Bureau of Mines Dist. 21, North Dakota/South Dakota

	% S	% Ash	% Moisture	BTU/lb
Average:	0.63 (proj)	NP	NP	6,497(proj)
Range:	NP	NP	NP	NP

Oil: Consumption (1000 bbls. per year): 32 (projected)

Source: Domestic - unspecified

	% S	BTU/Gal
Average:	NP	150,000(projected)
Range:	NP	NP

Gas: Consumption (10^6 Cubic feet Per Year): None

	BTU/Cu Ft
Average:	NA
Range:	NA

POWER PLANT SUMMARY - PAGE 2

ND11
Data Year 1976

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: Wet cooling towers

Cooling Intake Avg. CFS/source: 15/Missouri River

Cooling Discharge avg. CFR/source: 0

OPERATING DATA:

Unit No.	NA			
Name Plate Generating Capacity (MW):	NA			
Date Unit on Line:	NA			
Service Stack No.:	NA			
Type of Firing:	NA			
Boiler Manufacturer:	NA			
Operation (hr/yr):	NA			
Fuel Consumption Actual: Coal (MTPY)	NA			
Oil (MBPY)	NA			
Gas (10^6 CFPY)	NA			
100% feed (rate*/fuel)	NA			
	NA			
Emission Control Equipment:	NA			
Year Installed:	NA			
Manufacturer:	NA			
Efficiency: (Pollutant)	NA			

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

ND11

Date Year ____________

STACK PARAMETERS:

Stack No.	NA			
Stack Height (m): (above ground elevation)	NA			
Inside Diameter of Flue: at top (m):	NA			
Flue Gas Rate (cfm X10^3): 100% Load	NA			
75% Load	NA			
Exit Gas Temperature (^oF): 100% Load	NA			
75% Load	NA			
Exit Gas Velocity (FPS): 100% Load	NA			
75% Load	NA			
Distance to Next Stack: Center to Center (m)	NA			

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)	NA			
	Avg. (TPY)	NA			
SO_2:	Max. (lb/hr)	NA			
	Avg. (TPY)	NA			
NO_x:	Max (lb/hr)	NA			
	Avg (TPY)	NA			

POWER PLANT SUMMARY FORM

Code No. ND12
Data Year 1976

PLANT NAME (Capacity): Coyote (455.675 MW - 1981)

OPERATING COMPANY: Montana - Dakota Utilities

STATE: North Dakota COUNTY: Mercer CITY: Beulah

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 1,470 (projected)

Source: Bureau of Mines, Region 21 (N.D./S.D.)

	% S	% Ash	% Moisture	BTU/lb
Average:	0.8(Proj)	NP	NP	7,046(Proj.)
Range:	NP	NP	NP	NP

Oil: Consumption (1000 bbls. per year): 47.6 distillate (projected)

Source: NP

	% S	BTU/Gal
Average:	NA	NA
Range:	NA	NA

Gas: Consumption (10^6 Cubic feet Per Year): None

	BTU/Cu Ft
Average:	NA
Range:	NA

POWER PLANT SUMMARY - PAGE 2

0D12
Data Year 1976

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: Wet Cooling Towers

Cooling Intake Avg. CFS/source: 15.2 / Missouri River

Cooling Discharge avg. CFR/source: 1.3 / Missouri River

OPERATING DATA:

Unit No.	1			
Name Plate Generating Capacity (MW):	455.657			
Date Unit on Line:	1981			
Service Stack No.:	1			
Type of Firing:	NP			
Boiler Manufacturer:	NP			
Cperation (hr/yr):	NP			
Fuel Consumption Actual: Coal (MTPY)	1,470			
Oil (MBPY)	47.6			
Gas (10^6 CFPY)	None			
100% feed (rate*/fuel)	NP			
Emission Control Equipment:	NP			
Year Installed:	NP			
Manufacturer:	NP			
Efficiency: (Pollutant)	NP			

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

ND12
Date Year 1976

STACK PARAMETERS:

Stack No.	1			
Stack Height (m): (above ground elevation)	NP			
Inside Diameter of Flue: at top (m):	NP			
Flue Gas Rate (cfm X10^3): 100% Load	NP			
75% Load	NP			
Exit Gas Temperature (^{o}F): 100% Load	NP			
75% Load	NP			
Exit Gas Velocity (FPS): 100% Load	NP			
75% Load	NP			
Distance to Next Stack: Center to Center (m)	NP			

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)				
	Avg. (TPY)				
SO_2:	Max. (lb/hr)				
	Avg. (TPY)				
NO_x:	Max (lb/hr)				
	Avg (TPY)				

POWER PLANT SUMMARY FORM

Code No. SD2
Data Year 1976

PLANT NAME (Capacity): Kirk (32 MW's)

OPERATING COMPANY: Black Hills Power and Light Company

STATE: South Dakota COUNTY: Lawrence CITY: Deadwood

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 182.334

Source: Wyodak Resources Development Corp., Wyodak, Wy.

	% S	% Ash	% Moisture	BTU/lb
Average:	0.43	6.1	29.9	8092
Range:	Same	5.1-8.0	29.4-31.1	8010-8309

Oil: Consumption (1000 bbls. per year): None

Source: NA

	% S	BTU/Gal
Average:	NA	NA
Range:	NA	NA

Gas: Consumption (10^6 Cubic feet Per Year): None

	BTU/Cu Ft
Average:	NA
Range:	NA

POWER PLANT SUMMARY - PAGE 2

SD2
Data Year 1976

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: Wet cooling tower

Cooling Intake Avg. CFS/source: 0.620/ Homestake Mining Company

Cooling Discharge avg. CFR/source: 0.195 / Whitetail Creek

OPERATING DATA:

Unit No.	1	2	3	4
Name Plate Generating Capacity (MW):	5	5	5	16.5
Date Unit on Line:	35	35	35	56
Service Stack No.:	1	2	3	4
Type of Firing:	SPRE	SPRE	SPRE	SPRE
Boiler Manufacturer:	FW	FW	FW	CE
Operation (hr/yr):	7473	7885	6952	8147
Fuel Consumption Actual: Coal (MTPY)	30.577	33.298	27.691	90.768
Oil (MBPY)	None	None	None	None
Gas (10^6 CFPY)	None	None	None	None
100% feed (rate*/fuel)	76.1/c	76.5/c	75.4/c	90.4/c
Emission Control Equipment:	None	None	None	MCAX
Year Installed:	NA	NA	NA	56
Manufacturer:	NA	NA	NA	WEST
Efficiency: (Pollutant)	NA	NA	NA	92/TSP

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

SD2
Date Year 1976

STACK PARAMETERS:

Stack No.	1	2	3	4
Stack Height (m): (above ground elevation)	23.5	23.5	23.5	33.8
Inside Diameter of Flue: at top (m):	2.1	2.1	2.1	2.3
Flue Gas Rate (cfm X10^3): 100% Load	45	45	45	99.6
75% Load	NP	NP	NP	NP
Exit Gas Temperature (^{o}F): 100% Load	570	570	570	350
75% Load	NP	NP	NP	NP
Exit Gas Velocity (FPS): 100% Load	23.2	23.2	23.2	38.3
75% Load	NP	NP	NP	NP
Distance to Next Stack: Center to Center (m)	1-2 12.2	2-1 12.2	2-3 12.2	3-4 17.2

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)	7914.4	7956	7841.6	752.1
	Avg. (TPY) (1)	1211.6	1320.3	1097.9	287.9
SO_2:	Max. (lb/hr)	1243.5	1250.0	1232.0	1477.1
	Avg. (TPY) (2)	247.8	272.0	226.2	741.6
NO_x:	Max (lb/hr)	1141.5	1147.5	1131	1356
	Avg (TPY) (3)	229.3	249.7	207.7	680.8

(1) Reported Total = 2,780 TPY
(2) Reported Total = 400. TPY
(3) Reported Total = 1500 TPY

POWER PLANT SUMMARY FORM

Code No. SD4
Data Year 1976

PLANT NAME (Capacity): Lawrence (48.0 MW)

OPERATING COMPANY: Northern States Power Company

STATE: South Dakota COUNTY: Minnehaha CITY: Sioux Falls

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 51.567

Source: 75% Oklahoma, 25% Wyoming

	% S	% Ash	% Moisture	BTU/lb
Average:	1.9	11.8	17.7	9,712
Range:	0.8-3.9	6.9-18.7	9.0-22.5	8804-11,114

Oil: Consumption (1000 bbls. per year): 0.726

Source: Koch Refining, Wichita, Kansas

	% S	BTU/Gal
Average:	< 0.5	137,935
Range:	Same	Same

Gas: Consumption (10^6 Cubic feet Per Year): 162.823

	BTU/Cu Ft
Average:	998
Range:	988-1,003

POWER PLANT SUMMARY - PAGE 2

SD4

Data Year 1976

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: wet cooling towers

Cooling Intake Avg. CFS/source: 0.67/ Big Sioux River and Wells

Cooling Discharge avg. CFR/source: 0.20/ Big Sioux River

OPERATING DATA:

Unit No.	1	2	3	
Name Plate Generating Capacity (MW):	12.5	12.5	23	
Date Unit on Line:	48	49	51	
Service Stack No.:	1	2	3	
Type of Firing:	SPRF/GOPP	SPRF/GOPP	PCFR/GFRO	
Boiler Manufacturer:	B&W	B&W	FW	
Operation (hr/yr):	2837 combined		2958	
Fuel Consumption Actual:				
Coal (MTPY)	29.941 combined		21.626	
Oil (MBPY)	0.174 combined		0.552	
Gas (10^6 CFPY)	47.416 combined		115.407	
100% feed (rate*/fuel)	10/c	10/c	17/c	
	193/G	193/G	314/G	
Emission Control Equipment:	MCTA	MCTA	MCAX	
Year Installed:	48	49	51	
Manufacturer:	BUEL	BUEL	WEST	
Efficiency: (Pollutant)	77.0(TSP)	78.8(TSP)	76.4(TSP)	

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

SD4
Date Year 1976

STACK PARAMETERS:

Stack No.	1	2	3	
Stack Height (m): (above ground elevation)	50.3	50.3	50.3	
Inside Diameter of Flue: at top (m):	2.9	2.9	2.9	
Flue Gas Rate (cfm X10^3): 100% Load	77.6	77.6	90.3	
75% Load	62.6	62.6	68.3	
Exit Gas Temperature (^{o}F): 100% Load	480	480	323	
75% Load	452	452	309	
Exit Gas Velocity (FPS): 100% Load	17.6	17.6	20.5	
75% Load	14.2	14.2	15.5	
Distance to Next Stack: Center to Center (m)	1-2 17.4	2-1 17.4	2-3 17.4	

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)	537.7	537.7	1276.1	
	Avg. (TPY)	507.6 combined		512.1 (reported tot. 720)	
SO_2:	Max. (lb/hr)	1482.1	1482.1	2519.6	
	Avg. (TPY)	1081.2 combined		781.6 (reported tot. 1800)	
NO_x:	Max (lb/hr)	135.1	135.1	219.8	
	Avg (TPY)	286.4 combined		236.2 (reported tot. 460)	

POWER PLANT SUMMARY FORM

Code No. SD5
Data Year 1976

PLANT NAME (Capacity): Pathfinder (75.0 MW)

OPERATING COMPANY: Northern States Power Company

STATE: South Dakota COUNTY: Minnehaha CITY: Sioux Falls

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): None

Source: NA

	% S	% Ash	% Moisture	BTU/lb
Average:	NA	NA	NA	NA
Range:	NA	NA	NA	NA

Oil: Consumption (1000 bbls. per year): 130.079

Source: El Bride; Simba Ltd., and Skelly Petroleum

	% S	BTU/Gal
Average:	1.5	151,267
Range:	same	same

Gas: Consumption (10^6 Cubic feet Per Year): 553.973

	BTU/Cu Ft
Average:	995
Range:	988-1004

POWER PLANT SUMMARY - PAGE 2

SD5
Data Year 1976

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: Wet cooling towers

Cooling Intake Avg. CFS/source: 0.60/Big Sioux R. & wells

Cooling Discharge avg. CFR/source: 0.07/NP

OPERATING DATA:

Unit No.	11,12 & 13 (combined)			
Name Plate Generating Capacity (MW):	75(combined)			
Date Unit on Line:	69			
Service Stack No.:	1			
Type of Firing:	CYCL			
Boiler Manufacturer:	B&W			
Operation (hr/yr):	2243			
Fuel Consumption Actual: Coal (MTPY)	None			
Oil (MBPY)	130.079			
Gas (10^6 CFPY)	553.973			
100% feed (rate*/fuel)	46/O			
	290/G			
Emission Control Equipment:	None			
Year Installed:	NA			
Manufacturer:	NA			
Efficiency: (Pollutant)	NA			

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

SD5

Date Year 1976

STACK PARAMETERS:

Stack No.	1			
Stack Height (m): (above ground elevation)	45.7			
Inside Diameter of Flue: at top (m):	2.4			
Flue Gas Rate (cfm X10^3): 100% Load	245			
75% Load	191			
Exit Gas Temperature (^{o}F): 100% Load	360			
75% Load	350			
Exit Gas Velocity (FPS): 100% Load	82.5			
75% Load	64.5			
Distance to Next Stack: Center to Center (m)	NA			

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)	18.3			
	Avg. (TPY)	24.6(total reported 0)			
SO_2:	Max. (lb/hr)	455.1			
	Avg. (TPY)	643.5(total reported 610)			
NO_x:	Max (lb/hr)	405.9			
	Avg (TPY)	480.7 (total reported 390)			

POWER PLANT SUMMARY FORM

Code No. SD8
Data Year 1976

PLANT NAME (Capacity): Big Stone (455.657 MW)

OPERATING COMPANY: Otter Tail Power Company

STATE: South Dakota COUNTY: Grant CITY: Big Stone City

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 2,255.0

Source: Knife River Coal Company, Gascoyne, N. Dakota

	% S	% Ash	% Moisture	BTU/lb
Average:	0.8	6.9	42.3	6168
Range:	0.7-1.0	5.7-8.1	41.1-43.2	5999-6261

Oil: Consumption (1000 bbls. per year): 13.6

Source: Champlin Petroleum Company

	% S	BTU/Gal
Average:	0.5 est.	140,000
Range:	same	same

Gas: Consumption (10^6 Cubic feet Per Year): None

	BTU/Cu Ft
Average:	NA
Range:	NA

POWER PLANT SUMMARY - PAGE 2

SD8
Data Year 1976

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: Cooling pond

Cooling Intake Avg. CFS/source: 2.2 / pond (Big Stone Lake)

Cooling Discharge avg. CFR/source: 0

OPERATING DATA:

Unit No.	1			
Name Plate Generating Capacity (MW):	455.657			
Date Unit on Line:	NP			
Service Stack No.:	NP			
Type of Firing:	NP			
Boiler Manufacturer:	NP			
Operation (hr/yr):	6895			
Fuel Consumption Actual: Coal (MTPY)	2255.0			
Oil (MBPY)	13.6			
Gas (10^6 CFPY)	None			
100% feed (rate*/fuel)	NP			
	NP			
Emission Control Equipment:	E			
Year Installed:	NP			
Manufacturer:	NP			
Efficiency: (Pollutant)	99(TSP)			

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

SD8

Date Year 1976

STACK PARAMETERS:

Stack No.	NP			
Stack Height (m): (above ground elevation)	NP			
Inside Diameter of Flue: at top (m):	NP			
Flue Gas Rate (cfm $X10^3$): 100% Load	NP			
75% Load	NP			
Exit Gas Temperature (^{o}F): 100% Load	NP			
75% Load	NP			
Exit Gas Velocity (FPS): 100% Load	NP			
75% Load	NP			
Distance to Next Stack: Center to Center (m)	NP			

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)				
	Avg. (TPY)				
SO_2:	Max. (lb/hr)				
	Avg. (TPY)				
NO_x:	Max (lb/hr)				
	Avg (TPY)				

POWER PLANT SUMMARY FORM

Code No. U5
Data Year 1974

PLANT NAME (Capacity): Huntington #2 (411 Mw)

OPERATING COMPANY: Utah Power and Light Company

STATE: Utah COUNTY: Emery CITY: Huntington Canyon

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 454

Source: Peabody Coal Co., Deer Creek Mine,Huntington,Utah

	% S	% Ash	% Moisture	BTU/lb
Average:	0.48	11.40	6.99	11,860
Range:	0.42-0.54	10.05-13.44	5.49-7.78	11,558-12,134

Oil: Consumption (1000 bbls. per year): 17.0

Source: Chevron Oil Co.,Salt Lake 19.8; Gary Western Oil Co., Lakewood, Colorado 4.3

	% S	BTU/Gal
Average:	0.35(est)	19,626
Range:	Same	Same

Gas: Consumption (10^6 Cubic feet Per Year): None

	BTU/Cu Ft
Average:	NA
Range:	NA

POWER PLANT SUMMARY - PAGE 2

U5
Data Year 1974

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: Wet Cooling Tower

Cooling Intake Avg. CFS/source: 10.7/Huntington River

Cooling Discharge avg. CFR/source: 0/NA

OPERATING DATA:

Unit No.		#2		
Name Plate Generating Capacity (MW):		411		
Date Unit on Line:		1974		
Service Stack No.:		2		
Type of Firing:		PCTA		
Boiler Manufacturer:		CE		
Operation (hr/yr):		3399		
Fuel Consumption Actual:				
Coal (MTPY)		454		
Oil (MBPY)		17.0		
Gas (10^6 CFPY)		NA		
100% feed (rate*/fuel)		NP		
Emission Control Equipment:		E		
Year Installed:		1974		
Manufacturer:		BUEL		
Efficiency: (Pollutant)		99.5(TSP)		

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

Date Year U5 1974

STACK PARAMETERS:

Stack No.		#2		
Stack Height (m): (above ground elevation)		182.9		
Inside Diameter of Flue: at top (m):		7.3		
Flue Gas Rate (cfm X10^3): 100% Load		1,518		
75% Load		1,125		
Exit Gas Temperature (^oF): 100% Load		260		
75% Load		NP		
Exit Gas Velocity (FPS): 100% Load		56		
75% Load		41		
Distance to Next Stack: Center to Center (m)		NA		

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)				
	Avg. (TPY)		4.8 est		
SO_2:	Max. (lb/hr)				
	Avg. (TPY)		12.0 est.		
NO_x:	Max (lb/hr)				
	Avg (TPY)		18.0 est.		

POWER PLANT SUMMARY FORM

Code No. W1
Data Year 1974/1976

PLANT NAME (Capacity): Neil Simpson (28.8 MW)

OPERATING COMPANY: Black Hills Power & Light Co.

STATE: Wyoming COUNTY: Campbell CITY: Gillette

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 152.456

Source: Wyodak Resources Development Corporation

	% S	% Ash	% Moisture	BTU/lb
Average:	.43	6.1	29.9	8092
Range:	same	5.1-8.0	27.6-31.1	8025-8309

Oil: Consumption (1000 bbls. per year): 1.656

Source: Mobile Oil Corporation

	% S	BTU/Gal
Average:	NP	135000
Range:	NP	same

Gas: Consumption (10^6 Cubic feet Per Year): NA

	BTU/Cu Ft
Average:	NA
Range:	NA

POWER PLANT SUMMARY - PAGE 2

W1

Data Year 1974/1976

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: Dry Cooling Tower #1&5, Wet #3&4

Cooling Intake Avg. CFS/source: 10/wells

Cooling Discharge avg. CFR/source: 0.01/NP

OPERATING DATA:

Unit No.	1	3	4	5
Name Plate Generating Capacity (MW):	3	1.5	2.0	20.2
Date Unit on Line:	1961	1929	1948	1969
Service Stack No.:	1	3&4	3&4	5
Type of Firing:	PCFR	SPRE	SPRE	PCFR
Boiler Manufacturer:	B&W	B&W	B&W	FW
Operation (hr/yr):	864	6572	4044	7456
Fuel Consumption Actual: Coal (MTPY)	2.3	14.0	10.0	126.
Oil (MBPY)	NA	NA	NA	1.6
Gas (10^6 CFPY)	NA	NA	NA	
100% feed (rate*/fuel)	5.4	1.6	3.9	17.7
Emission Control Equipment:	-	GRAV	GRAV	MCAX
Year Installed:	-	1929	1948	1969
Manufacturer:	-	-	-	UOP
Efficiency: (Pollutant)	-	20(TSP)	20(TSP)	80(TSP)

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

W1
Date Year 1974/1976

STACK PARAMETERS:

Stack No.	1	3	4	5
Stack Height (m): (above ground elevation)	17.3	53.9	21.8	33.3
Inside Diameter of Flue: at top (m):	1.6	1.7	1.8	2.4
Flue Gas Rate (cfm X10^3): 100% Load	29.184	32.784	46.200	120.0
75% Load	NP	NP	NP	NP
Exit Gas Temperature (^{O}F): 100% Load	600	560	580	500
75% Load	NP	NP	NP	NP
Exit Gas Velocity (FPS): 100% Load	20	20	27.5	40
75% Load	NP	NP	NP	NP
Distance to Next Stack: Center to Center (m)	12	12	18	-

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)	734	133	324	481
	Avg. (TPY)	119	444	317	1307 (2000)*
SO_2:	Max. (lb/hr)	88.2	26.1	63.7	289.2
	Avg. (TPY)	18.8	114.8	82	1033 (1,600)*
NO_x:	Max (lb/hr)	97.2	24	58.5	318.6
	Avg (TPY)	21	75	105	1134 (1,400)*

* Total reported values

POWER PLANT SUMMARY FORM

Code No. W2
Data Year 1976

PLANT NAME (Capacity): Osage (33 MW)

OPERATING COMPANY: Black Hills Power and Light Company

STATE: Wyoming COUNTY: Weston CITY: Osage

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 248.95

Source: Wyodak Resources Development Corporation, Wyodak, Wyoming

	% S	% Ash	% Moisture	BTU/lb
Average:	0.43	6.1	29.9	8092
Range:	Same	5.1 - 8.0	27.6 - 31.1	8010-8309

Oil: Consumption (1000 bbls. per year): None

Source: NA

	% S	BTU/Gal
Average:	NA	NA
Range:	NA	NA

Gas: Consumption (10^6 Cubic feet Per Year): None

	BTU/Cu Ft
Average:	NA
Range:	NA

POWER PLANT SUMMARY - PAGE 2

W2
Data Year 1976

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: Wet Cooling Towers

Cooling Intake Avg. CFS/source: 1.2 / wells

Cooling Discharge avg. CFR/source: 0.22 / Poison Creek

OPERATING DATA:

Unit No.	1	2	3	
Name Plate Generating Capacity (MW):	NP	NP	NP	
Date Unit on Line:	NP	NP	NP	
Service Stack No.:	NP	NP	NP	
Type of Firing:	NP	NP	NP	
Boiler Manufacturer:	NP	NP	NP	
Operation (hr/yr):	7424	8476	8505	
Fuel Consumption Actual:				
Coal (MTPY)	77.25	86.46	85.24	
Oil (MBPY)	None	None	None	
Gas (10^6 CFPY)	None	None	None	
100% feed (rate*/fuel)	NP	NP	NP	
Emission Control Equipment:	MCAX	MCAX	MCAX	
Year Installed:	61	61	61	
Manufacturer:	COTT	COTT	COTT	
Efficiency: (Pollutant)	91(TSP)	91(TSP)	91(TSP)	

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

Date Year W2 1976

STACK PARAMETERS:

Stack No.	1	2	3	
Stack Height (m): (above ground elevation)	24.4	24.4	24.4	
Inside Diameter of Flue: at top (m):	2.0	2.0	2.0	
Flue Gas Rate (cfm X10^3): 100% Load	73.871	73.871	73.871	
75% Load	NP	NP	NP	
Exit Gas Temperature (^{o}F): 100% Load	370	370	370	
75% Load	NP	NP	NP	
Exit Gas Velocity (FPS): 100% Load	35	35	35	
75% Load	NP	NP	NP	
Distance to Next Stack: Center to Center (m)	14.6	14.6	14.6	

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)				
	Avg. (TPY)	339	379	374	
SO_2:	Max. (lb/hr)				
	Avg. (TPY)	633	709	699	
NO_x:	Max (lb/hr)				
	Avg (TPY)	695	778	767	

POWER PLANT SUMMARY FORM

Code No. W3
Data Year 1974

PLANT NAME (Capacity): Dave Johnston (750.3 MW)

OPERATING COMPANY: Pacific Power and Light Company

STATE: Wyoming COUNTY: Converse CITY: Glenrock

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 265.31

Source: Dave Johnston Mine, Converse County, Wyoming

	% S	% Ash	% Moisture	BTU/lb
Average:	0.6	11.8	27.2	7442
Range:	0.5-0.9	9.9-15.9	25.7-28.4	7093-7765

Oil: Consumption (1000 bbls. per year): 15.7

Source: American Oil Caompany (21.7 X 10^3 bbls) Little America Refining Co (3.2 X 10^3 bbls)

	% S	BTU/Gal
Average:	0.4	137,193 #2 oil 147,301 #6 oil
Range:	same	N/A

Gas: Consumption (10^6 Cubic feet Per Year): None

	BTU/Cu Ft
Average:	N/A
Range:	N/A

POWER PLANT SUMMARY - PAGE 2

W3
Data Year 1974

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: Units 1-3 once-through w/wet tower during summer #4 wet cooling tower

Cooling Intake Avg. CFS/source: 292.9/North Platte River

Cooling Discharge avg. CFR/source: 281.2/North Platte River

OPERATING DATA:

Unit No.	1	2	3	4
Name Plate Generating Capacity (MW):	113.6	113.6	229.5	330.3
Date Unit on Line:	59	61	64	72
Service Stack No.:	1	2	3	4
Type of Firing:	PCFR	PCFR	PCOP	PCTA
Boiler Manufacturer:	B&W	B&W	B&W	CE
Operation (hr/yr):	8,182	7,691	7,754	6,121
Fuel Consumption Actual: Coal (MTPY)	519.8	484.4	727.2	921.7
Oil (MBPY)	0.9#2-0.2#6	1.1#2	2.8#2/3.9#6	6.8#2
Gas (10^6 CFPY)	None	None	None	None
100% feed (rate*/fuel)	77.5/C	77.5/C	163.0/C	255.8/C
Emission Control Equipment:	MCAX	MCAX	MCAX	VENT
Year Installed:	59	61	64	72
Manufacturer:	WEST	WEST	COTT	OTHE**
Efficiency: (Pollutant)	86.0(TSP)	86.0(TSP)	82.0(TSP)	98.8(TSP)

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.
** Chemical Construction Corporation

POWER PLANT SUMMARY - PAGE 3

W3
Date Year 1974

STACK PARAMETERS:

Stack No.	1	2	3	4
Stack Height (m): (above ground elevation)	76.2	76.2	76.2	75.9
Inside Diameter of Flue: at top (m):	3.8	3.8	4.9	7.0
Flue Gas Rate (cfm X10^3): 100% Load	790.0	790.0	1,565.0	1,235.1
75% Load	655.0	655.0	1,160.0	915.5
Exit Gas Temperature (^{o}F): 100% Load	290	290	268	130
75% Load	264	264	256	125
Exit Gas Velocity (FPS): 100% Load	107	107	130	50
75% Load	89	89	96	37
Distance to Next Stack: Center to Center (m)	1-2 41.8	2-3 45.3	3-4 83.2	4-3 83.2

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)	2932	2932	7930	138
	Avg. (TPY)	7299	6801	13128	184
SO_2:	Max. (lb/hr)	2650	2650	5574	4374
	Avg. (TPY)	5925	5522	8290	5253
NO_x:	Max (lb/hr)	1395	1395	2934	4604
	Avg (TPY)	4678	4359	6544	8295

POWER PLANT SUMMARY FORM

Code No. W4
Data Year 1975

PLANT NAME (Capacity): Jim Bridger (508.6 MW)

OPERATING COMPANY: Pacific Power & Light Company

STATE: Wyoming COUNTY: Sweetwater CITY: Rock Springs

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 1445.9

Source: Bridger Coal Co. Mine Adjacent to the Plant

	% S	% Ash	% Moisture	BTU/lb
Average:	.6	10.5	19.5	9203
Range:	.6-.7	8.5-11.6	18.2-20.5	8905-9679

Oil: Consumption (1000 bbls. per year): 85.4

Source: Pasco (Mountain Fuel Supply) Sinclair, Wyo.

	% S	BTU/Gal
Average:	0.2	137090
Range:	same	same

Gas: Consumption (10^6 Cubic feet Per Year): none

	BTU/Cu Ft
Average:	NA
Range:	NA

POWER PLANT SUMMARY - PAGE 2

W4

Data Year 1975

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: Wet Cooling Towers

Cooling Intake Avg. CFS/source: 8.24/Green River

Cooling Discharge avg. CFR/source: 0

OPERATING DATA:

Unit No.	1	2	3	4
Name Plate Generating Capacity (MW):	508.6	508.6	508.6	508.6
Date Unit on Line:	1974	1975	1976	1978
Service Stack No.:	1	2	3	4
Type of Firing:	PCTA Dry	PCTA Dry	PCTA	PCTA
Boiler Manufacturer:	CE	CE	CE	CE
Operation (hr/yr):	6272	2169	-	-
Fuel Consumption Actual: Coal (MTPY)	1087.9	358	-	-
Oil (MBPY)	27.2	58.2	-	-
Gas (10^6 CFPY)	-	-		
100% feed (rate*/fuel)	255	255	255	255
Emission Control Equipment:	ESP	ESP	ESP	ESP/Na Scrubber
Year Installed:	1974	1975	1976	1978
Manufacturer:	SF/Carborundam		SF/Carborundam	
Efficiency: (Pollutant)	99.4 (TSP)	99.4 (TSP)	99.4 (TSP)	994 (TSP) 90 (SO_2)

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

W4

Date Year 1975

STACK PARAMETERS:

Stack No.		1	2	3	4
Stack Height (m): (above ground elevation)		151	151	151	151
Inside Diameter of Flue: at top (m):		7.3	7.3	7.3	7.3
Flue Gas Rate (cfm X10^3):	100% Load	1899	1899	1899	1899 *
	75% Load	1483	1483	1483	1483 *
Exit Gas Temperature (°F):	100% Load	240	240	240	240*
	75% Load	215	215	215	215*
Exit Gas Velocity (FPS):	100% Load	67	67	67	67*
	75% Load	52	52	52	52*
Distance to Next Stack: Center to Center (m)		83	81	-	

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)	301.7	301.7	301.7	301.7
	Avg. (TPY)	583	191	-	-
SO_2:	Max. (lb/hr)	6783	6783	6783	678
	Avg. (TPY)	12402	4081	-	-
NO_x:	Max (lb/hr)	4590	4590	4590	4590
	Avg (TPY)	9791	3222	-	-

* These parameters may change due to scrubber operation Units 1-3 to have scrubbers in future to meet 0.3 lb $SO_2/10^6$ BTU emission limit in Wyoming

POWER PLANT SUMMARY FORM

Code No. W6
Data Year 1974

PLANT NAME (Capacity): Naughton (707.2 MW)

OPERATING COMPANY: Utah Power and Light

STATE: Wyoming COUNTY: Lincoln CITY: Kemmerer

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 2,185,198

Source: Kemmerer Coal Company, Kemmerer, Wyoming

	% S	% Ash	% Moisture	BTU/lb
Average:	0.5(est.)	4.5(est.)	23.0(est.)	9626
Range:	same	same	same	9529-9702

Oil: Consumption (1000 bbls. per year): 9.491 (ignition only)

Source: Phillips Petroleum Co., Kemmerer, Wyoming

	% S	BTU/Gal
Average:	0.6(est.)	140,000
Range:	same	same

Gas: Consumption (10^6 Cubic feet Per Year): none

	BTU/Cu Ft
Average:	NA
Range:	NA

POWER PLANT SUMMARY - PAGE 2

W6

Data Year 1974

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: Wet cooling towers - mechanical draft

Cooling Intake Avg. CFS/source: 18.0/Hams Fork River

Cooling Discharge avg. CFR/source: 0 (blowdown to ash sluice tank)

OPERATING DATA:

Unit No.	1	2	3	
Name Plate Generating Capacity (MW):	152.6	200	306	
Date Unit on Line:	58	63	71	
Service Stack No.:	1	2	3	
Type of Firing:	PCTA wet	PCTA wet	PCTA wet	
Boiler Manufacturer:	CE	CE	CE	
Operation (hr/yr):	7399	7602	7024	
Fuel Consumption Actual: Coal (MTPY)	495.340	692.151	997.707	
Oil (MBPY)	1.970	3.626	3.896	
Gas (10^6 CFPY)	None	None	None	
100% feed (rate*/fuel)	62/C	113/C	175/C	
Emission Control Equipment:	MCTA/E	MCTA	E	
Year Installed:	63/74	68	71	
Manufacturer:	COTT?Log COTT	COTT	BUEL	
Efficiency: (Pollutant)	80.0 /97.0(TSP)	80.0(TSP)	96(TSP)	

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

W6
Date Year 1974

STACK PARAMETERS:

Stack No.	1	2	3	
Stack Height (m): (above ground elevation)	61.0	68.6	76.2	
Inside Diameter of Flue: at top (m):	4.3	4.9	6.7	
Flue Gas Rate (cfm $X10^3$): 100% Load	563.0	701.0	1162.0	
75% Load	424.0	500.0	834.0	
Exit Gas Temperature (^{o}F): 100% Load	166	145	149	
75% Load	153	117	120	
Exit Gas Velocity (FPS): 100% Load	61	61	82	
75% Load	49	42	59	
Distance to Next Stack: Center to Center (m)	29.3	29.3	40.1	

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)	108	1322	409	
	Avg. (TPY)	435	4056	1169	
SO_2:	Max. (lb/hr)	1178	2147	3325	
	Avg. (TPY)	4705	6575	9478	
NO_x:	Max (lb/hr)	1860	3390	5250	
	Avg (TPY)	7430	10382	14965	

POWER PLANT SUMMARY FORM

Code No. W7
Data Year 1975

PLANT NAME (Capacity): Laramie River (1500 MW - 1983)

OPERATING COMPANY: Basin Electric Power Coop

STATE: Wyoming COUNTY: Platte CITY: Wheatland

FUEL DATA:

Coal: Consumption (1000 Tons Per Year): 7600 (projected to 1985)

Source: NP

	% S	% Ash	% Moisture	BTU/lb
Average:	.7	4 (est.)	NP	8125
Range:	NP	NP	NP	NP

Oil: Consumption (1000 bbls. per year): 27 (projected 1985)

Source: NP

	% S	BTU/Gal
Average:	NP	NP
Range:	NP	NP

Gas: Consumption (10^6 Cubic feet Per Year): None

	BTU/Cu Ft
Average:	NA
Range:	NA

POWER PLANT SUMMARY - PAGE 2

W7
Data Year 1975

WATER SYSTEM REQUIREMENTS:

Cooling Mechanism: Wet cooling Towers

Cooling Intake Avg. CFS/source: 26 / Grey Rocks Dam - on Laramie River

Cooling Discharge avg. CFR/source: None

OPERATING DATA:

Unit No.	1	2	3	
Name Plate Generating Capacity (MW):	500	500	500	
Date Unit on Line:	1910	1981	1983	
Service Stack No.:	1	1	2	
Type of Firing:	NP	NP	NP	
Boiler Manufacturer:	NP	NP	NP	
Operation (hr/yr):	NP	NP	NP	
Fuel Consumption Actual:				
Coal (MTPY)	2525	2525	2525	
Oil (MBPY)	9	9	9	
Gas (10^6 CFPY)	none	none	none	
100% feed (rate*/fuel)	288 /C	288 /C	288 /C	
Emission Control Equipment:	ESP/SO_2 scrub.	ESP/SO_2 scrub.	ESP/SO_2 scrub.	
Year Installed:	1980	1981	1983	
Manufacturer:	NP	NP	NP	
Efficiency: (Pollutant) (TSP/SO_2)	99.34/ 87.8 or 90	99.39/87.8 or 90	99.39/87.8 or 90	

*Rates: Coal in Tons/hr, oil in Bbls/hr, gas in 1000 cubic ft./hr.

POWER PLANT SUMMARY - PAGE 3

W7

Date Year 1975

STACK PARAMETERS:

Stack No.	1	2		
Stack Height (m): (above ground elevation)	181	181		
Inside Diameter of Flue: at top (m):	6	6		
Flue Gas Rate (cfm X10^3): 100% Load	NP	NP		
75% Load	NP	NP		
Exit Gas Temperature (°F): 100% Load	NP	NP		
75% Load	NP	NP		
Exit Gas Velocity (FPS): 100% Load	NP	NP		
75% Load	NP	NP		
Distance to Next Stack: Center to Center (m)	152	NA		

EMISSIONS ESTIMATES:

TSP:	Max. (lb/hr)	130	130	130	
	Avg. (TPY)	2000	2000	2000	
SO_2:	Max. (lb/hr)	900	900	900	
	Avg. (TPY)	4000	4000	4000	
NO_x:	Max (lb/hr)				
	Avg (TPY)				